

CREIGHTON UNIVERSITY BULLETIN

2002-2004 ISSUE GRADUATE SCHOOL

This publication contains the most current information available on the subjects covered as of the date of publication. However, this publication is **not** an offer to enter into a contract. Final selection of applicants to be admitted shall be made by the University, which reserves the right to deny admission to any applicant for any lawful reason. The University also reserves the right to modify or eliminate University rules and policies, including without limitation: admission requirements and criteria; course offerings, or location or frequency thereof; course content; grading requirements and procedures; degree requirements; tuition, fee, and board and room rates; financial assistance programs; substantive or procedural student disciplinary rules; and support services, and to apply any such modifications to any student without regard to date of admission, application or enrollment.

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To The Prospective Student

Creighton's Graduate School provides an administrative vehicle for collaboration by senior faculties from five of the seven other schools and colleges of the University in offering opportunities for advanced study and research to college graduates. Approximately 11 percent of all Creighton degrees awarded have been, and continue to be, graduate degrees.

We have aided large numbers of teachers, counselors, school administrators, business executives, nurses, ministers and religious leaders by offering Master's degrees for their professional and personal development. Our solid traditional programs have provided the initial direction for graduates' achievement in research, teaching and technical careers.

We also have a substantial number of doctoral students who pursue studies in Biomedical Sciences, Pharmacology or Medical Microbiology and Immunology. These programs provide a solid base for a research career and aim to produce scientists of the highest caliber.

The common ingredients for success that our graduate degree recipients have possessed are a natural curiosity, a capacity for self-discipline and a personal commitment to habitual inquiry. These qualities, when cast with the experience and dedication of senior faculty mentors, work toward an imaginative recasting of the ideas requisite to successful research and development of human knowledge. Graduate studies at Creighton (a) embrace the ideal of a university as a community of scholars, (b) offer an opportunity for discovery born of disciplined inquiry, and (c) cultivate a person-centered environment, which can be the doorway to a stimulating, creative and meaningful life.

The decision to enter graduate study must be a personal one. Persons with genuine intellectual ability and commitment to self-discipline are encouraged to explore the opportunities graduate school can provide. Superior intellectual ability combined with individual initiative is a scarce and valued human resource.

We invite you to visit with our graduate professors and students as you explore your interests in graduate study. We would be pleased to demonstrate our strengths and explain our limitations to prospective graduate students as a matter of personal and community concern.

Cordially,

BARBARA J. BRADEN, Ph.D.
Dean, Graduate School

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FIRST SEMESTER, 2002-2003

2002

August	<i>17, Saturday</i>	Welcome Week begins. Activities for all new students, freshmen and transfers, are announced in a special brochure. 7:30 P.M. Welcome Week Mass. St. John's Church.
	<i>19-20, Mon.-Tues.</i>	8:00-11:30 A.M., 1:00-4:00 P.M. Late Registration in the Registrar's Office.
	<i>21, Wednesday</i>	Classes begin.
	<i>21-27, Wed.-Tues.</i>	8:30-11:45 A.M. and 1:00-4:00 P.M. Class Schedule Changes and Late Registration. Registrar's Office.
	<i>27, Tuesday</i>	Last day for late registration and class schedule changes.
September	<i>2, Monday</i>	Labor Day. Holiday - no classes.
	<i>11, Wednesday</i>	11:00 A.M. Mass of the Holy Spirit. St. John's Church.
	<i>12, Thursday</i>	Last day to change from credit to audit. Last day to apply for Pass/No Pass status.
October	<i>10, Thursday</i>	Last day for filing applications for degrees to be conferred at the end of the First Semester.
	<i>12, Saturday</i>	Fall Recess begins after last class, clinic, or laboratory.
	<i>14, Monday</i>	9:00 A.M. Mid-semester grade reports from instructors due in Registrar's Office.
	<i>21, Monday</i>	7:30 A.M. Classes resume.
	<i>25, Friday</i>	Last day to withdraw from courses with a "W."
November	<i>26, Tuesday</i>	Thanksgiving recess begins after last class, clinic or laboratory.
	<i>28, Thursday</i>	9:00 A.M. Thanksgiving Day Mass. St. John's Church.
December	<i>2, Monday</i>	7:30 A.M. Classes resume.
	<i>9, Monday</i>	Final semester examinations begin.
	<i>14, Saturday</i>	Last day of required attendance of First Semester. Christmas—Mid-year Recess begins.
	<i>14, Saturday</i>	Mid-year Commencement.

SECOND SEMESTER, 2002-2003

2003

January	<i>13-14, Mon.-Tues.</i>	8:00-11:30 A.M., 1:00-4:00 P.M. Late Registration in the Registrar's Office.
	<i>15, Wednesday</i>	Classes begin.
	<i>15-21, Wed.-Tues.</i>	8:30-11:45 A.M. and 1:00-4:00 P.M. Late Registration in the Registrar's Office.
	<i>21, Tuesday</i>	Last day for late registration and class schedule changes.
February	<i>5, Wednesday</i>	Mass for Founders's Week: Past, Present and Future. St. John's Church. Time to be announced.
	<i>13, Thursday</i>	Last day to change from credit to audit. Last day to apply for Pass/No Pass status.
	<i>17, Monday</i>	Last day for filing applications for degrees to be conferred at end of Second Semester.
March	<i>8, Saturday</i>	Spring recess begins after last class, clinic or laboratory.
	<i>10, Monday</i>	9:00 A.M. Mid-semester grade reports from instructors due in the Registrar's Office.
	<i>17, Monday</i>	7:30 A.M. Classes resume.
	<i>24, Monday</i>	Last day to withdraw from courses with a "W."
April	<i>17, Thursday</i>	Holy Thursday—classes suspended from 5:00 P.M. April 17 to 5:00 P.M. Monday, April 21.
	<i>20, Sunday</i>	Easter Sunday.
	<i>21, Monday</i>	Easter Monday. Classes resume at 5:00 P.M.
May	<i>5, Monday</i>	Final semester examinations begin.
	<i>10, Saturday</i>	Final semester examinations end. Last day of required attendance of Second Semester except for candidates for degrees.
	<i>16, Friday</i>	3:00 P.M. Baccalaureate Mass.
	<i>17, Saturday</i>	University Commencement.

SUMMER SESSION, 2003

May	<i>19, Monday</i>	On-campus registration for Pre-session: 8:00-10:00 A.M. Registrar's Office. Pre-Session classes begin 9:00 A.M.
	<i>20, Tuesday</i>	Last day for Pre-Session registration and course changes.
	<i>23, Friday</i>	Last day to change from credit to audit or apply for Pass/no Pass status for Pre-Session.
	<i>26, Monday</i>	Memorial Day - No classes.
June	<i>30, Friday</i>	Last day to withdraw from Pre-Session with "W".
	<i>6, Friday</i>	Pre-session final examinations; Pre-session ends.
	<i>9, Monday</i>	On-campus registration for Term 1. 8:30-11:30 A.M. and 1:00-3:00 P.M., Registrar's Office. 4:00-5:00 P.M., Registrar's Office for evening students only. Term 1 classes meet at regularly scheduled times beginning June 9 at 7:30 A.M.
	<i>11, Wednesday</i>	9:00 A.M. Pre-Session final grade reports from instructors due in Registrar's Office from instructors.
	<i>12, Thursday</i>	Last day for late registration and course changes for Term 1.
	<i>12, Thursday</i>	Last day for filing applications for degrees to be conferred at end of Summer Session.
July	<i>16, Monday</i>	Last day to change from credit to audit or to apply for Pass/no Pass status for Term 1.
	<i>30, Monday</i>	Last day to withdraw from Term 1 course with a "W".
	<i>4, Friday</i>	Independence Day - no classes.
	<i>10, Thursday</i>	Final examinations. Term 1 ends.
	<i>14, Monday</i>	Registration for Term 2. 9:00-11:00 A.M. and 1:00-3:00 P.M., Registrar's Office. Term 2 classes meet at regularly scheduled times beginning July 14 at 7:30 A.M.
	<i>15, Tuesday</i>	9:00 A.M. Term 1 final grade reports from instructors due in Registrar's Office from instructors.
	<i>17, Thursday</i>	Last day for late registration and course changes for Term 2.
	<i>21, Monday</i>	Last day to change from credit to audit or to apply for Pass/no Pass status for Term 2.
August	<i>4, Monday</i>	Last day to withdraw from Term 2 with "W".
	<i>14, Thursday</i>	Final examinations; Term 2 ends. Final copy of Master's Thesis Due in Graduate School Office for those students expecting graduate degrees to be conferred at the end of the First Semester.
	<i>18, Monday</i>	9:00 A.M. Term 2 final grade reports from instructors due in Registrar's Office.

FIRST SEMESTER, 2003-2004

2003

August	<i>23, Saturday</i>	Welcome Week begins. Activities for all new students, freshmen and transfers, are announced in a special brochure. 7:30 P.M. Welcome Week Mass. St. John's Church.
	<i>25-26, Mon.-Tues.</i>	8:00-11:30 A.M., 1:00-4:00 P.M. Late Registration in the Registrar's Office.
	<i>27, Wednesday</i>	Classes begin.
	<i>27-Sept. 2, Wed.-Tues.</i>	8:30-11:45 A.M. and 1:00-4:00 P.M. Class Schedule Changes and Late Registration. Registrar's Office.
September	<i>1, Monday</i>	Labor Day. Holiday - no classes.
	<i>2, Tuesday</i>	Last day for late registration and class schedule changes.
	<i>10, Wednesday</i>	11:00 A.M. Mass of the Holy Spirit. St. John's Church.
	<i>11, Thursday</i>	Last day to change from credit to audit. Last day to apply for Pass/no Pass status.
October	<i>16, Thursday</i>	Last day for filing applications for degrees to be conferred at the end of the First Semester.
	<i>18, Saturday</i>	Fall Recess begins after last class, clinic, or laboratory.
	<i>20, Monday</i>	9:00 A.M. Mid-semester grade reports from instructors due in Registrar's Office.
	<i>27, Monday</i>	7:30 A.M. Classes resume.
	<i>31, Friday</i>	Last day to withdraw from courses with a "W."
November	<i>25, Tuesday</i>	Thanksgiving recess begins after last class, clinic or laboratory.
	<i>27, Thursday</i>	9:00 A.M. Thanksgiving Day Mass. St. John's Church.
December	<i>1, Monday</i>	7:30 A.M. Classes resume.
	<i>1, Monday</i>	Final copy of Master's Thesis Due in Graduate School Office for those students expecting graduate degrees to be conferred at the end of the First Semester.
	<i>15, Monday</i>	Final semester examinations begin.
	<i>20, Saturday</i>	Last day of required attendance of First Semester. Christmas - Mid-year Recess begins.
	<i>20, Saturday</i>	Mid-year Commencement.

SECOND SEMESTER, 2003-2004

2004

January	<i>12-13, Mon.-Tues.</i>	8:00-11:30 A.M., 1:00-4:00 P.M. Late Registration in the Registrar's Office.
	<i>14, Wednesday</i>	Classes begin.
	<i>14-20, Wed.-Tues.</i>	8:30-11:45 A.M. and 1:00-4:00 P.M. Late Registration in the Registrar's Office.
	<i>20, Tuesday</i>	Last day for late registration and class schedule changes.
February	<i>11, Wednesday</i>	Mass for Founders's Week: Past, Present and Future. St. John's Church. Time to be announced.
	<i>12, Thursday</i>	Last day to change from credit to audit. Last day to apply for Pass/No Pass status.
	<i>16, Monday</i>	Last day for filing applications for degrees to be conferred at end of Second Semester.
March	<i>6, Saturday</i>	Spring recess begins after last class, clinic or laboratory.
	<i>8, Monday</i>	9:00 A.M. Mid-semester grade reports from instructors due in the Registrar's Office.
	<i>15, Monday</i>	7:30 A.M. Classes resume.
	<i>22, Monday</i>	Last day to withdraw from courses with a "W."
April	<i>8, Thursday</i>	Holy Thursday—classes suspended until 5:00 P.M. Monday, April 12.
	<i>11, Sunday</i>	Easter Sunday.
	<i>12, Monday</i>	Easter Monday. Classes resume at 5:00 P.M.
	<i>23, Friday</i>	Final copy of Master's Thesis Due in Graduate School Office for those students expecting graduate degrees to be conferred at the end of the Second Semester.
May	<i>3, Monday</i>	Final semester examinations begin.
	<i>8, Saturday</i>	Final semester examinations end. Last day of required attendance of Second Semester except for candidates for degrees.
	<i>14, Friday</i>	3:00 P.M. Baccalaureate Mass.
	<i>15, Saturday</i>	University Commencement.

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PATRICIA A. FLEMING, Ph.D., <i>Senior Associate Dean</i>
FRANCIS M. KLEIN, Ph.D., <i>Associate Dean</i>
JACK E. WALSH, Ed.M., M.A., <i>Assistant Dean</i>
ROSE M. HILL, M.P.A., <i>Assistant Dean</i>

COLLEGE OF BUSINESS ADMINISTRATION

Officers of Administration

ROBERT E. PITTS, Ph.D., *Dean*
JACK L. KROGSTAD, Ph.D., *Associate Dean*
JOHN R. WINGENDER, Jr., Ph.D., *Associate Dean*

SCHOOL OF NURSING

Officers of Administration

ELEANOR HOWELL, Ph.D., *Interim Dean*
JOAN F. NORRIS, Ph.D., *Associate Dean for Research and Evaluation*
LINDA LAZURE, Ph.D., *Associate Dean for Student Affairs*
MARY KUNES-CONNELL, Ph.D., *Interim Associate Dean for Academic Affairs*

UNIVERSITY COLLEGE AND SUMMER SESSIONS

Officer of Administration

BARBARA J. BRADEN, Ph.D., *Dean*
MARY E. BESTENLEHNER, B.A., *Assistant Dean*

THE GRADUATE SCHOOL

BARBARA J. BRADEN, Ph.D., *Dean*

BOARD OF GRADUATE STUDIES

Dean of the Graduate School, Chair
Twelve Faculty Representatives
Two Student Representatives



BARBARA J. BRADEN, Ph.D., *Dean of Graduate School*

GENERAL INFORMATION

Creighton University is by far the most diverse educational institution of its size in the nation. The combination of relatively small size and unusual diversity is the key to appreciation of Creighton University's excellence.

With an enrollment of 6,226 persons taught by a faculty of 1,361, Creighton has set as its goal the conduct of higher education in the context of Christian values.

Founded in 1878, Creighton is coeducational, independent, and has always been operated by the Jesuits in the traditions of that Catholic religious order. Creighton has a faculty and student body made up of individuals of many races and faiths from every geographical region of the United States and from numerous foreign nations.

Creighton is a university in the true sense. In addition to the College of Arts and Sciences, Creighton has a College of Business Administration, University College, Schools of Dentistry, Medicine, Law, Nursing, and Pharmacy and Health Professions, and a Graduate School offering master and doctorate degrees. Creighton has been active in the establishment of continuing education programs and of a Summer Session of modern design for the contemporary educational consumer. The University College offers undergraduate degree and certificate programs for part-time students and specializes in noncredit offerings for adults.

Thirty-four percent of the University's students are enrolled in the College of Arts and Sciences, 32 percent in the health sciences professions, 11 percent in Business Administration, 7 percent in University College, 8 percent in law, and 8 percent in the Graduate School.

LOCATION

Omaha, Nebraska's largest population center, is located on the western bank of the Missouri River, which serves as the Nebraska-Iowa boundary. Originally settled by the Omaha Indian Tribe, Omaha was soon a favorite stop for early settlers traveling up the Missouri River. Omaha's frontier traditions and values have remained largely intact as the city has progressed into the 21st century. Creighton's campus is located on the northwest edge of downtown Omaha, Nebraska. The University's planned campus of nearly 93.5 acres is near the city's revitalized urban center.

Omaha is the heart of a metropolitan area of 716,998, with more than 1 million people within a 50-mile radius. The city is the major urban area between Chicago and Denver and between Kansas City and Minneapolis.

Creighton University is perfectly situated to enjoy both the charm and beauty of the city and its cultural and recreational attractions. The campus is minutes from downtown theater, shopping, government and financial districts; Gene Leahy Mall and the Heartland of America Park, the jewels of downtown Omaha's scenic riverfront development; Henry Doorly Zoo, which features the world's largest indoor tropical rainforest and geodesic desert biodome, a 450,000 gallon walk-through salt water aquarium, and IMAX Theater; and Rosenblatt Stadium, home of the NCAA College World Series and the Omaha Royals.

Omaha, a cultural center of the Great Plains, is home of the world-class Opera Omaha and Omaha Symphony. The Omaha Community Playhouse and Omaha Theater Company For Young People are among the top community theaters in the nation. The Joslyn Art Museum not only displays impressive permanent collections from 19th and 20th century European and American artists, but also schedules five major exhibits and a dozen small presentations each year. One of the nation's finest old-world style theaters, the Orpheum, is home to hundreds of outstanding entertainment events each year and the Durham Western Heritage Museum features some of the area's largest historical offerings.

An enthusiastic sports city, Omaha has hosted the NCAA College World Series, held in early June each year, for over 50 years.

Creighton, who will host the College World Series for the 54th consecutive year in June 2003, is an NCAA Division I school which sponsors 14 men's and women's intercollegiate sports and competes in the Missouri Valley Conference. The Creighton Bluejay baseball, basketball, and soccer teams have earned trips to their respective NCAA tournaments in recent years.

Omaha is also the site of a vital downtown area. Omaha's Missouri Riverfront has undergone a massive redevelopment supported by private and public funds. A brand new 240,000 sq. ft. Convention Center and 16,000 seat Arena, slated to open in 2003, are visible signs of a downtown alive with expansion. In addition, a recently proposed plan will place an impressive pedestrian bridge spanning the Missouri River from Nebraska to Iowa. The Gallup organization is building their new headquarters here, as is First National Bank, creating the largest tower between Chicago and Denver.

Omaha is served by over 180 regularly scheduled daily flights by nine national air carriers and ten regional airlines. Two interstate highway systems serve the metropolitan area—I-80 going east and west and I-29 north and south.

Many students find inexpensive and charming apartments in renovated historic buildings close to both Creighton and the European allure of "The Old Market," downtown Omaha's shopping and dining quarter. The cost of living in Omaha is less than that of almost any other major city — a comfortable lifestyle is within easy reach.

HISTORY

John and Edward Creighton, builders of the transcontinental telegraph that linked pioneer America, have given their name to the University.

Edward's widow, Mary Lucretia Creighton, carrying out her husband's wishes, left money and directions for establishing a college in his memory. Following her death on January 23, 1876, the present University site was purchased and the first Bishop of Omaha, the Right Reverend James O'Connor, D.D., invited the Jesuits to conduct the Creighton College.

One priest, three scholastics, a layman, and a woman formed the faculty when classes began September 2, 1878. On August 14, 1879, Bishop O'Connor surrendered his trust to a new corporation, "The Creighton University."

Jesuits were exclusive managers of the corporation until, in October 1968, the Board of Directors was expanded to include laypersons. Today twenty-three laypersons and eight Jesuits conduct the corporate affairs of Creighton University.

The early growth of Creighton University and the enlargement of its endowment were due mainly to the benefactions of John A. Creighton and his wife, Sara Emily Creighton.

THE JESUIT ORDER AND CREIGHTON UNIVERSITY

Creighton University, situated in the heart of America, is Jesuit education. Jesuit American education on the secondary level network is all-embracing. Forty-six Jesuit high schools dot our map; one was established in the 18th Century, twenty-four in the 19th Century, and twenty-one in the 20th Century, affecting over 36,500 young men and women of all denominations.

Twenty-eight Jesuit universities flourish from coast to coast, in 1990 enrolling 182,628 collegiate and professional students. Jokingly likened to sparrows, Jesuits in higher education frequent our nation's largest cities. The educational opportunities they provide are diverse, but all the institutions share in the Jesuit character and tradition. Why? Because they are staffed by religious and lay colleagues who are imbued with,

or attracted by, the educational ideals of St. Ignatius Loyola, founder of the Jesuit Order. Ignatius outlined his principles for broadly-educated and decent people marked by good judgment in his *Ratio Studiorum*, "Plan of Studies," written about 1540.

There seems to be an instant bond of camaraderie and identification among graduates of diverse American Jesuit universities and high schools before they have visited together for five minutes. Creighton graduates have commented on this again and again. It is a subtle but real bond that these graduates feel. They are part of a great and satisfying network calculated to prepare them for a full and rewarding life. This Jesuit education is shared with 1,000 other institutions conducted by the total number of 25,000 Jesuits across the world.

American Jesuit Priests and Brothers are active on every front. They are the largest missionary Order in the Catholic Church. Of their 6,000 American Jesuits, every fifth man is in the harvest field of foreign or American mission.

GOALS AND OBJECTIVES

Creighton University exists to educate her students with a view to their intellectual expansion, social adequacy, physical development, aesthetic appreciation, and spiritual enrichment. Creighton serves her publics primarily through teaching and research. Employing the techniques of teaching and research offers numerous other opportunities to provide community services and leadership.

Creighton has behind it a pattern of more than four centuries of Jesuit teaching. The Order's focus has always been on the total person, an approach that includes development of each student's talents to assure that he or she can meet both material and spiritual needs.

Members of every denomination are enrolled in and welcome to all courses in the University. While Creighton fosters learning in a Christian-oriented setting and challenges students to reflect on transcendental truths, students are not required to participate in religious services or activities.

All educational programs of Creighton University are open to both men and women.

The University Assessment Plan has been established to help measure the success of Creighton's academic programs. Each college and school has in place its own appropriate plan to determine student achievement in its programs and to implement changes for continuous improvement in Creighton's assessment plans, and students participate with faculty and administration in striving for improvements in the teaching-learning process. In addition, the University Plan embraces Student Services, and the special areas of cultural diversity and service to others, values which are emphasized in Creighton's Mission Statement.

CREDO OF CREIGHTON

Creighton, a Jesuit University, is convinced that the hope of humanity is the ability of men and women to seek the truths and values essential to human life. It aims to lead all its members in discovering and embracing the challenging responsibilities of their intelligence, freedom, and value as persons.

We therefore profess, and pledge ourselves to teach in the perspectives of, the following creed:

We believe in God, our loving Creator and Father.

We believe in the intrinsic value of the human being as created in God's image and called to be his child. This includes all persons and excludes any form of racism and other discrimination.

We believe that the deepest purpose of each man and woman is to create, enrich, and share life through love and reverence in the human community. This motivates our open and relentless pursuit of truth. For this reason we foster reverence for life in all its human potential.

We believe that we should support all persons in their free and responsible life-sharing through family and social systems, and through political, scientific, and cultural achievements.

We believe that we must strive for a human community of justice, mutual respect, and concern. In this context we must cultivate respect and care for our planet and its resources.

We believe that laws exist for the benefit and well-being of individual persons, that legal systems must express the common good, and that all government must be subject to the courageous, though respectful and loyal, criticism of intelligent and responsible citizens.

We believe that the law of justice and love must regulate the personal, family, economic, political, and international life of all persons if civilization is to endure.

We believe in the teachings and example of Jesus Christ.

NONDISCRIMINATION POLICY

Creighton admits qualified students and hires qualified employees without regard to race, color, age, national or ethnic origin, disability, sex, marital status, or religion. Its education and employment policies, scholarship and loan programs, and other programs and activities, are administered without unlawful discrimination. The University is taking affirmative action to employ and advance in employment qualified disabled veterans and veterans of the Vietnam-era. The University Affirmative Action Director has been delegated the responsibility for coordination of the University's equal rights efforts.

It is also the policy of the University to make all programs and services available to individuals with disabilities. To obtain information on accessibility of buildings and programs or to report problems of accessibility, please contact the Office of the Director of Affirmative Action, Room 232, Administration Building or by telephone (402) 280-3084.

SERVICES FOR STUDENTS WITH DISABILITIES

Services for students with disabilities are provided to qualified students to ensure equal access to educational opportunities, programs, and activities in the most integrated setting possible. Students must make timely and appropriate disclosures and requests (at least five weeks in advance of a course, workshop, program, or activity for which accommodation is requested or such other reasonable time as the particular circumstance of a request for accommodation warrants). Requests for reasonable accommodations are encouraged to be made as soon as possible after acceptance. Each student may be required to submit medical or other diagnostic documentation of disability and limitations, and may be required to participate in such additional evaluation of limitations as may appropriately be required by Creighton University or other agencies prior to receiving requested accommodations. The University reserves the right to provide services only to students who complete and provide written results of evaluations and service recommendations to appropriate University personnel. For more information, contact the Dean's Office or the Coordinator of Services for Students with Disabilities at 280-2749.

GRADUATION RATES

In 2001 the completion or graduation rate for students who entered Creighton University in Fall 1995 was 72 percent. This includes students who entered professional school programs of Dentistry, Law, Medicine and Pharmacy and Allied Health Professions at Creighton University.

ACCREDITATION

Creighton University is fully accredited by the North Central Association of Colleges and Schools, the accrediting agency for the region in which the University is situated.

The College of Business Administration is an accredited member of the International Association for Management Education-AACSB (graduate and undergraduate programs). The accounting program has been accredited (Type A - baccalaureate) by the Accounting Accreditation Committee of the Association.

The School of Nursing offers a baccalaureate program and a graduate program in nursing, both accredited by the National League for Nursing, Inc. Additionally, the baccalaureate program is approved by the State of Nebraska.

The Department of Social Work is an accredited council on social work education program preparing professional undergraduate social workers.

The teacher education programs of Creighton University are fully accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary, secondary, and special education teachers at the undergraduate level, and for the graduate-level preparation of school principals and school counselors.

The Schools of Dentistry, Law, Medicine, and Pharmacy and Allied Health Professions are accredited by their respective professional standardizing agencies: American Dental Association, American Bar Association and Association of American Law Schools, Liaison Committee on Medical Education, American Council on Pharmaceutical Education, the American Occupational Therapy Association, and the American Physical Therapy Association.

CAMPUS DEVELOPMENT

A student center was constructed on mid-campus in 1987. Artificial-turf athletic fields were completed in 1988 and then renovated in 1999 with new turf and an indoor batting facility. Offices and lockers were added in 2001 and rededicated as the "Kitty Gaughn Pavillion. The Lied Education Center for the Arts was completed in the spring of 1995. The Kiewit Fitness Center and Ahmanson Law Center have been expanded. The new McGloin Residence Hall opened in August 1998. Complete renovation of Swanson Hall was completed in 1999.

Health Sciences Facilities

The Doctor C. C. and Mabel L. Criss Health Sciences Center is made possible largely through the generosity of the late Mabel L. Criss, whose gift commemorates her late husband, Dr. C.C. Criss. Dr. Criss was a Creighton alumnus; the couple founded Mutual of Omaha and United of Omaha.

The Criss Center provides teaching, medical laboratory space, and facilities for the research activities of the faculty of the School of Medicine. Two separate units (Criss II and III) provide classroom and laboratory facilities for instruction of the freshman and sophomore students in the preclinical medical sciences, as well as office and laboratory space for the members of the preclinical faculty. Twin two-level 255-seat

amphitheatres, the connecting link between the two units, form the hub of the academic activities. Multipurpose laboratories, classrooms, and seminar rooms are conveniently distributed throughout the facility. In addition, the Criss Health Sciences Center accommodates the administration, faculty, and students of the School of Nursing and the School of Pharmacy and Health Professions. The administrative offices of the School of Medicine are located in the Criss Health Sciences Center, as are the offices of the Vice President for Health Sciences. Another unit (Criss I) provides medical research facilities for the faculty. As part of an ongoing process to upgrade and modernize Health Sciences facilities, a complete renovation of Unit I of the Criss Center was completed in February 1994. The Beirne Research Tower adjoins the Criss Health Sciences Center. This six story medical research facility was made possible by a gift from Doctor Gilbert A. Beirne and his brother, Doctor Clinton G. Beirne. The Beirne Research Tower provides approximately 13,000 square feet of space for laboratories and offices. The modern, functional research laboratories house the regulatory peptide research program, the infectious disease and microbiology program, a bone biology research program, the molecular biology core facility, and an allergic diseases research program.

The University currently has under construction a 100,000 square foot science facility. The building will be physically connected to both Criss and Rigge and provide expansion space for functions of the Vice President of Health Sciences, administration and faculty offices of the School of Pharmacy and Health Professions, offices for the Department of Preventive Medicine, classrooms, common use areas, Arts and Sciences administrative functions, and offices and classrooms for undergraduate science departments.

Once construction of the new space is complete in December of 2002, space in the existing Criss and Rigge buildings will be renovated to provide state of the art research and teaching laboratories. Additionally, two 168-seat teaching amphitheatres will be updated technically and environmentally.

A new medical student computer laboratory has been built in the Criss II building. Student computer workstations are available in several sites in the Criss Center, Health Sciences Library, Creighton University Medical Center, and various clinics. The students have access to a wide variety of software, databases (including MedLine), electronic mail, and the internet.

Creighton University Medical Center, an ultramodern regional health-care facility with state-of-the-art technology, serves as the major affiliated teaching hospital for the Creighton University School of Medicine. Opened in December of 1977, it is located on Creighton's west campus at 30th and California Streets and was one of the largest privately sponsored construction projects in the history of Nebraska. Policies for the hospital are set by a governing board that includes strong representation from Creighton University and the School of Medicine faculty.

The School of Medicine, since its founding, has been affiliated for educational purposes with St. Joseph Hospital. This affiliation is in accordance with the provisions made by John A. Creighton, a benefactor of both institutions, and formalized in written agreements to define cooperation for the attainment of mutual and generally inseparable goals of good patient care, research, and medical education. A major regional and community facility, the hospital maintains programs in each of the major clinical services with the active staff appointed from the faculty of the School of Medicine. The close working relationship of the two institutions is continually reinforced by regular meetings of the joint management committee involving the top executive officers of both the hospital corporation and the University.

A six-story office complex attached directly to the hospital provides office suites and examining areas for the clinical faculty of the School of Medicine. The clinical faculty assigned by the chairs of the several departments provide teaching in the following clinical areas:

Allergy; arthritis; cardiology; chest disease; dermatology; diabetes; endocrinology; family medicine; hematology; infectious disease; neurology; obstetrics and gynecology; oncology;

ophthalmology; orthopedics; otolaryngology; pediatrics; peripheral vascular disease; proctology; psychiatry; psychology; radiology; rehabilitation; renal; rheumatology; surgery; and urology.

A clinical assessment center has recently been developed at St. Joseph Hospital. The ultra-modern facility has six examination rooms each equipped with recording equipment for faculty teaching and supervision of student history and physicals.

The diagnostic laboratory is supervised by the Department of Pathology and the radiological service by the Department of Radiology. Annual visits to the Health Center exceed 100,000.

An outpatient Cardiac Center opened in 1992. This three-story 60,000 square-foot building houses all cardiac outpatient diagnostic facilities as well as an outpatient Cardiac Catheterization Laboratory and a 15,000 square-foot Cardiac Rehabilitation Center.

The Boys Town National Research Hospital, constructed and operated by Father Flanagan's Boys Home, is physically connected to the teaching hospital. A unique national resource, the Hospital has assembled a highly specialized staff to develop inpatient and outpatient programs for children with communication disorders resulting from physical or sensory defects. The St. Joseph Service League Center for Abused Handicapped Children, established at the Hospital, is designed to assist in the detection, assessment, treatment, and prevention of abuse and neglect of children whose handicaps impair their communicative abilities. The staff of the Hospital also comprises the faculty and staff of the Department of Otolaryngology of the School of Medicine, and the Director of the Institute occupies the Father Flanagan Chair of Otolaryngology.

Since 1973, the School of Dentistry has occupied a facility containing 150,000 square feet of space (excluding interstitial mechanical areas). It is a three level structure with grade entry to the first two. Beginning in Fall 1993, this building has been shared with the School of Pharmacy and Allied Health's Physical Therapy and Occupational Therapy programs. A five-year renovation of all classrooms, laboratories and dental clinic operatories was completed in 1998. The first floor consists of student services and lounge, classrooms, Physical Therapy/Occupational Therapy administrative offices, clinics and research laboratories. The adult dental clinic and dental departmental faculty offices occupy the second level. The third level is occupied by the children's dental clinic, basic and dental science laboratories, research space, seminar rooms and dental administrative offices.

Central to the facilities of the Health Center is the Creighton University Bio-Information Center, which opened in the summer of 1977. This facility brings to the health sciences campus a focal point for modern and innovative learning and research. The services provided are available for students and faculty of the University, hospital staff, and the health sciences community of the Omaha area. They include the Health Sciences Library, the Learning Resource Center, and the Media Services Center. Media Services provides technical services such as photography, graphic design, computer imaging, television production and classroom services. Classroom Services provides audio visual support for the University as well as educational service to assist in the identification of instructional priorities and attainment of educational goals.

The Health Sciences Library/Learning Resources Center (HSL/LRC) is open 104½ hours a week. Over 200,000 items of print and non-print materials are available. Access is provided to many; bibliographic and full-text databases such as MEDLINE, Micromedex, pharmaceutical abstracts, etc. The Learning Resources Center adds a multimedia dimension to the facility. It provides such resources as video disks, CD-ROMs, models, videotapes, and audiocassettes. In addition, a state of the art computer lab is equipped with Pentium PCs and Macintosh computers. Over 600 study seats are available for students, faculty, and staff.

University Libraries

The libraries of the University and the volumes and microforms they contain are shown below. The totals are exclusive of pamphlets, reports, and similar publications. The Reinert/Alumni Library is the University's main library.

Alumni Library	465,967	Volumes	838,915	Microforms
Law	156,980	Volumes	716,106	Microforms
Health Sciences	<u>239,599</u>	<u>Volumes</u>	<u>49,309</u>	<u>Microforms</u>
	862, 546	Volumes	1,604,330	Microforms

LIVING ACCOMMODATIONS

Creighton University offers on-campus housing for all full-time matriculated students. **All unmarried undergraduate students, from outside the immediate Omaha area (as defined by the University), are required to live in University residence halls the first two years they are at the University. Students from the Omaha area may live in the residence halls. Otherwise, during their first two years at the University, students from Omaha must live with a parent or guardian.** A request to be exempt from the residency requirement must be made in writing to the Office of the Associate Vice-President for Student Services by July 15th prior to the beginning of the student's classes. Only the Associate Vice President for Student Services will be able to permit these exemptions. A resident must be a full-time, matriculated student at the University. If space allows, the University may permit housing of part-time students in University residence halls.

The University operates seven residence halls. Three freshman halls, Deglman, Kiewit, and Gallagher, are traditional style with common bathroom facilities. Most rooms are double occupancy. Two halls, McGloin and Swanson, are suite style with four sophomore students per suite. One hall, Kenefick, is a residence for junior and senior level students and is an efficiency or one bedroom apartment style hall. Heider Hall, is a hall of efficiency, one-bedroom, and two-bedroom apartments open to married students, students with families, or students who have already completed bachelor's degrees. Limited space is available for students with families. To reside in Heider Hall, students must sign a 12 month lease. All other halls are contracted for the full academic year beginning in August and continuing until the end of exams the following May.

The residence hall contract is for both room and board. Only students living in Kenefick or in Heider Hall are not required to be on the board plan. A student requesting to be off the board plan for medical or other reasons must furnish documentation to the Associate Vice-President for Student Services for his review. Generally, the dining services are able to meet most dietary needs. Students may elect either a 19, 15, or 12 meal plan per week. Students in Kenefick or in Heider Hall may elect any of the standard meal plans or the Flex Plan. The Flex Plan allows the student to eat 60 meals during a semester. Board plans are also available to off campus and commuting students.

Meals are served in the Becker and Brandeis dining areas located adjacent to the campus residence halls. Students on the board plans may also have dinner in the Java Jay coffeehouse, Irma's Bistro and C. Jay's in the Student Center as part of the meal exchange program. More information about dining opportunities is available from Sodexo food service located on the lower level of Brandeis Hall.

The annual room and board rates in University residence halls effective August 2001 are:

Building Type	Room	Annual Rate
Deglman, Kiewit & Gallagher Halls	Double	\$3650
	Private	\$5470
Swanson Hall's (Sophomores only)	Double	\$3800
	Private	\$5690
Kenefick Hall (Juniors & Seniors Only)	Efficiency apartment	\$3950
	1 Bedroom apartment	\$4100
	Private efficiency	\$5850
McGloin Hall (Sophomores only)	Double	\$3930
	Private	\$5876
Heider (12 month lease) (Family and post bachelor degrees only)	Efficiency	\$6912
	Small 1 Bedroom	\$7656
	Large 1 Bedroom	\$7968
	Two Bedroom	\$9072
Board Plans	Type Plan	Annual Rate
	19 Meal and 40 Points Bonus	\$2788
	15 Meal and 100 Bonus Points	\$2788
	12 Meal - No Bonus Points	\$2632
Available to Heider, Flex - Any 60 meals and 200 Bonus Points Kenefick & Off Campus Students Only		\$1090

Incoming students must apply to the Department of Residence Life for a residence hall reservation. All students pay a damage deposit of \$100. **Students applying for Heider Hall are required to pay a deposit equal to one month's rent for the Heider lease plan.** Each semester's tuition, fees, and room and board charges are payable at the time of registration. However, arrangements may be made to pay monthly installments by using the University's Monthly Electronic Transfer (MET) plan (see page 33).

Room and board rates are subject to change without notice. Any special needs as to age or physical condition requiring special housing arrangements will be given full consideration by the Associate Vice President for Student Services. Questions regarding housing services and facilities may be directed to the Department of Residence Life, 136 Swanson Hall; telephone (402) 280-3016. More information is available at www.creighton.edu/ResidenceLife or by email at CUHousing@creighton.edu.

FAMILY HOUSING

Creighton University has limited space in the apartment-style Heider residence hall for families. A twelve-month lease is required on all apartments except for those graduating at the end of the current lease. Available for families are the large one-bedroom apartments (655 sq. ft.) There are only four two-bedroom apartments in Heider Hall. Family housing is available on a first-come, first-served basis.

OFF CAMPUS HOUSING

The Department of Residence Life, 136 Swanson Hall, lists information on rentals in the area of campus. The actual arrangements for housing are left to the individual students. The University is not responsible for the rental agreements between students and their landlords. It is suggested that students set aside several days before registering to search, inspect, and contract for suitable housing.

CHILD DEVELOPMENT CENTER

Students with children may wish to take advantage of the Creighton Child Development Center, which is conveniently located at 2222 Burt Street. The Center has reasonable rates, and can accommodate children ranging in age from six weeks through five years. Call (402) 280-2460 for information.

STUDENT HEALTH SERVICES

Mission Statement

Student Health Services is committed to promoting the health of the whole person. We do this as a campus health resource, primary care provider group, and an Insurance plan sponsor. These services will support students in the performance of their academic endeavors. Our Ignatian tradition integrates the physical, mental, spiritual, and emotional aspects of the student's life. We will educate and prepare students to be advocates for their health.

Student Health Services

The variety of services available at Creighton University Student Health Services will meet the health care needs of most students. Every effort is made to help students obtain appropriate consultation or referral when additional or specialized services are required. A physician, nurse practitioner, or physician's assistant provides services. Services are available to all currently enrolled Creighton University students.

Services Include:

- Allergy Injections
- Physicals
- EKG's
- Immunizations
- Laboratory
- Travel Health Consultation
- Pap Smears
- Radiology
- Health Promotion
- Educational Materials

Services are provided through student fees, personal insurance, and/or self pay. Immunizations, laboratory tests, x-rays, splints, specialist referrals etc. not covered by personal/family health insurance will be the financial responsibility of the student.

It is essential that a current insurance card be presented at each visit.

How to obtain Student Health Services

Call 280-2735, Monday through Friday. Appointments should be made for all health needs other than emergencies. It is important that you keep scheduled appointments and that you arrive on time. If you will be late or must cancel, please call as soon as possible. Your courtesy will enable the best use of our available appointment times.

Students will be seen in the Student Health Services office located in the Kellom Valley (Shops) Center at 2530 Cuming Street.

Participating Providers

Student Health Services providers are considered participating providers with University sponsored Insurance. It is important to check with your insurance plan to verify if services rendered at Student Health Services will be a covered expense under your plan. Claims are automatically submitted to the insurance carrier indicated by the student at the time services are provided.

University Immunization Requirements

Creighton University policy **requires** that **all students born on or after January 1, 1957** provide documentation of two vaccinations for **Measles, Mumps and Rubella prior to enrollment**. Immunization must be given after 12 months of age and after December 31, 1967. A second immunization must be given after 1980. History of disease is not acceptable.

University Health Insurance Requirements

It is Creighton University policy that all full time students be covered by a comprehensive health insurance plan* for the entire academic year.

NOTE: The premium for the University-sponsored Student Health Insurance Plan will remain on the student's account unless a properly completed waiver form and a copy of both sides of a current health insurance card are received by Student Health Services before the deadline. **This information is required on an annual basis.**

*A comprehensive health insurance plan fulfills the following requirements:

1. Coverage includes most inpatient and outpatient health services and is comparable to the University sponsored Plan
2. Coverage is in effect for the entire Academic year
3. Coverage includes comprehensive benefits when out of area (away from home)

* Automatic enrollment into the University sponsored Plan will occur and the tuition statement will reflect a charge for the entire premium when Student Health Services becomes aware of a lapse in the student's health coverage.

Services available during the Summer

Services provided during the summer are the same as those offered during the academic year. These services are provided through personal health insurance and/or self-pay.

Student Health Services is responsible for maintaining the records that relate to the following University requirements. Please contact us if you have any questions.

Creighton University Student Health Insurance Plan

As a service to students, the University sponsors a comprehensive health insurance plan. This plan is available at a reasonable group rate and provides year-round coverage, wherever the student may be, as long as the semi-annual premium is paid. This plan provides benefits for laboratory tests and x-rays, the services of designated subspecialists and specific services at St. Joseph Hospital with minimal charges when referred by Student Health Services. Students enrolled in this plan can access our health care providers by telephone, after-hours, for guidance for urgent or emergency care.

Enrollment into the Creighton Student Health Insurance Plan cannot be processed until a signed, completed enrollment form is received by Student Health Services.

Contact Student Health Services for complete details.

For additional information please contact Creighton Student Health Services at: 2530 Cuming Street, Omaha, Nebraska 68131-1632, Phone: (402) 280-2735, Fax: (402) 280-1859, <http://www.creighton.edu/StudentHealth>.

COUNSELING AND PSYCHOLOGICAL SERVICES

These professional services are designed to help students actualize themselves in the areas of effective learning, appropriate educational and vocational decision-making, and social and personal adjustment. In conjunction with counseling interviews, a complete selection of psychological tests and inventories are available to students so that they may explore values, interests, aptitudes, abilities, personality and lifestyle. Lifestyle includes both academic and social behaviors such as study skills and abusive drinking.

The staff are professionally trained psychologists and counselors who assist students with a wide range of developmental and crisis concerns. Students expressing concerns in areas such as studying, interpersonal relationships, communication, decision-making, choices of majors or occupations, or lifestyle and values clarification may benefit from talking with a staff member.

The staff members strive to be understanding, warm, and accepting—not making decisions for the student but assisting him or her in self-direction. Staff are specially trained and have experience with the counseling and psychological needs of the university student. Confidentiality is practiced and information is not released out of the service without the written consent of the student.

The Counseling and Psychological Services is located in Room 203, Brandeis Hall, 280-2733. Please call for an appointment.

EXTRACURRICULAR ACTIVITIES

It is the goal of Creighton University to develop an individual who not only has mastered the content of his or her academic courses, but who also has broad interests and who has developed skills in interpersonal relations. To aid in this process, the university promotes a wide range of student organizations and activities. Students are encouraged to take an active interest in the various academic, social, dramatic, literary, debating, student government and religious activities. The Student Activities Office in the Student Center can provide information.

THE ALUMNI ASSOCIATION

The Creighton University Alumni Association was formed in 1892 to provide an organization through which alumni could continue the friendships and associations developed during their student days.

Its mission is “to advance the interests of the Creighton family through a commitment to academic excellence, Judeo/Christian ethics, and a lifelong relationship between Creighton alumni and their University that enriches both.”

The administration of alumni activities is handled by the Alumni Relations Office under supervision of the Director of Alumni Relations, as advised by the National Alumni Board. Among the activities sponsored by the Alumni Relations Office are the annual President’s Alumni Picnic, the Thanksgiving Day Mass and Breakfast, alumni club events, and class reunions for the various Schools and Colleges. University representatives frequently attend alumni club get-togethers to which alumni, parents of students, and friends of Creighton University are invited.

Through its alumni clubs, the Creighton Alumni Association has grown over the years to include over 50,000 alumni, parents, and friends.

THE GRADUATE SCHOOL

The Graduate School was formally established as a separate division of Creighton University in 1926, although the first Master's degree was conferred by the University in 1893.

PURPOSE

The Graduate School is charged with promoting graduate studies and research of high quality within the various graduate programs, and with fostering scholarship and research among the faculty.

Graduate study differs from undergraduate study in that, while extending the student's range of knowledge through course work and independent study, it intends to develop traits of critical judgment, independent thinking, scholarly initiative, and the habit of disciplined inquiry. Each graduate student is expected to thoroughly develop knowledge and skills in at least one field of endeavor so that the student can communicate the major concepts of that area of expertise to specialists and laypersons. The student should not expect to acquire the advanced knowledge and technical skills for interpretation and development of one's field of study from formal classroom and laboratory sessions alone, but should, in addition, utilize his or her energies to collect, organize, synthesize, and communicate the knowledge and application of the independent resources of one's chosen discipline. Mature graduate study, then, aids the student in acquiring the skills requisite to identifying problems of inquiry, formulating means to the solution of those problems, and communicating the interpretations of scholarly analysis.

ORGANIZATION OF THE GRADUATE SCHOOL

The Graduate School of Creighton University is conducted under the administration of the Dean and Board of Graduate Studies. The board is composed of the Dean (chair), six representatives elected by the graduate faculty, and six appointed by the Dean, and two student representatives.

Each program recommends on admission of students to advanced study and research after weighing the background, interest and promise of the prospective student, and evaluating the availability of human and physical resources for meeting the student's objectives and the program's goals.

THE GRADUATE FACULTY

The faculty of the Graduate School are appointed by the Dean from the faculty of those divisions of the University that offer graduate programs: Creighton College of Arts and Sciences (humanities and letters, education, mathematics and computer science), College of Business Administration, the School of Medicine (biomedical sciences, medical microbiology, pharmacology), the School of Nursing and the School of Pharmacy and Allied Health.

The graduate faculty serve as program directors and graduate student advisers. Questions relating to specific aspects of graduate study can be directed to the particular program's director of graduate studies or to the student's graduate adviser. Questions relating to specific aspects of admission, however, should be directed to the Office of the Dean of the Graduate School.

The duties of the graduate faculty include the following:

1. Reviewing, sponsoring, and making recommendations regarding the admission of new students to degree programs and forwarding them to the Dean of the Graduate School for approval;
2. Advising graduate students and formulating curricular plans of study;
3. Reviewing and approving individual degree programs (plans of study) and forwarding them to the Dean of the Graduate School for approval;
4. Assisting the Dean of the Graduate School in implementation of regulations and policies covering graduate students, graduate study, and graduate courses.

NATURE OF GRADUATE STUDY

A graduate course provides for advanced study in a field of knowledge beyond the upper-division level. It demands a higher level of independent critical analysis and a higher degree of specialization than is usually required in an undergraduate course. A graduate course may be conducted in several ways:

1. As a course designed to organize the results of original research or to expand an advanced field of knowledge;
2. As a seminar in which the instructor and a small group of graduate students present the results of their special study and original research for group criticism, evaluation, and discussion;
3. As an individual project or as individual research conducted under the supervision of a senior scholar.

The graduate curriculum is designed to provide the student advanced study in a selected discipline or in an interdisciplinary program. All courses listed in an advanced degree program must be graduate or advanced upper-division courses approved by the student's graduate committee and graduate adviser.

STUDENT'S PLAN OF STUDY

Upon matriculation the student is required to identify his/her specific objectives and a sponsor (adviser) who will aid the student in constructing a *Plan of Study*, which should be formulated during the first semester (nine to twelve semester credit hours) in residence for a Master's degree or within the first year (30 semester hours) for the Doctor's degree. The formal acceptance of a plan of study will then establish the courses, experiences, and research endeavors expected in meeting the degree requirements of the program. Prerequisite deficiencies should be included in the *Plan of Study*, although they may not contribute to the minimum credit requirements for the degree. The curriculum will ordinarily culminate with a general comprehensive examination and/or defense of thesis or dissertation.

Ordinarily a plan of study will include from 30 to 36 semester hours of graduate course work (including supervised research and research tools) for a Master's degree and 90 semester hours of course work, independent study, and research for a Doctor's degree. In addition, all doctoral programs and Plan A Master's programs require a dissertation or thesis that represents a significant contribution to the literature of the field. No graduate degree is awarded on the basis of course work alone, but is awarded on the basis of demonstrated proficiency in the field. Specific requirements and opportunities for studies are detailed under the program descriptions.

ADMISSION

It is the admission policy of Creighton University to accept qualified students within the limits of its resources and facilities. See also the University's *Nondiscrimination Policy* on page 16.

GENERAL REQUIREMENTS

A student desiring admission to graduate courses must possess a Bachelor's degree or its equivalent from an accredited college or university. Entrance into an advanced study program or access to graduate courses requires preparation equivalent to Creighton's undergraduate major preparation for the proposed program of graduate study.

Applicants for admission who hold an undergraduate degree or its equivalent but are unable to meet all of the requirements for graduate work in a specific field or fields are admitted only on a conditional basis. Such applicants may be required to take further undergraduate work of a substantial nature at Creighton University or at another approved institution.

Ordained priests and ministers who have completed a four-year course of study in a recognized seminary may apply for admission to the Graduate School. They must, however, submit a transcript of courses taken in the seminary and fulfill whatever prerequisites the program director finds lacking before they are allowed to become applicants for degrees.

Students lacking a Bachelor's degree who have successfully completed at least three years of undergraduate preparation in college and the first two years in an accredited school of medicine or dentistry may apply for admission to a graduate program in which they have met undergraduate prerequisites. In all cases, the applicant's previous record is expected to show an adequate foundation for graduate study in terms of both subject matter and quality of work.

APPLICATION PROCEDURE

In the event the applicant is seeking admission to the Master of Business Administration, Information Technology Management, or Electronic Commerce Graduate Program, he or she must contact the Graduate Business Program Coordinator in the College of Business Administration and obtain the appropriate application form. For all other programs, the Dean of the Graduate School must be contacted to obtain a formal application. Anyone seeking admission to a graduate program must have the following credentials submitted accordingly either to the Dean of the Graduate School or the Graduate Business Program Coordinator:

1. A completed formal application for admission together with a \$40 (nonrefundable) application fee.
2. An official transcript of all college work attempted sent direct from each institution attended. Photocopies from students are not acceptable.
3. Graduate Record Examination (GRE) scores or Graduate Management Admission Test (GMAT) scores.
4. Three letters of recommendation/evaluation by persons familiar with the student's academic background, potential, and achievements and personal qualities are required for students seeking admission to all programs.
5. All foreign applicants are required to take the Test of English as a Foreign Language (TOEFL) and have the scores sent to Creighton unless they can demonstrate proficiency in English in some other way.

The deadline for completing one's application and credentials file for the doctoral programs is February 15 for those seeking admission in the Fall Semester. Deadlines for completing one's application and credentials file are July 15 for the Fall Semester, December 15 for the Spring Semester, and May 15 for the Summer Session.

The applicant for admission must assume the responsibility of requesting the registrar of each institution previously attended to mail an official transcript of record direct to the Dean of the Graduate School or the Graduate Business Program Coordinator. A transcript must be received from each institution attended, including any attended during summer sessions, regardless of whether or not the transcript of the last institution attended lists the record at other institutions and regardless of whether or not credit was received. All documents, including credentials and other materials, become the property of Creighton University and are not returnable.

Those who wish to pursue graduate study but are not candidates for a degree from Creighton may be admitted to the Graduate School as special students. A special student application is required, and the students must obtain consent of the Department Chair prior to registering for any course. The number of hours earned as a special student that can be applied toward a graduate degree at the University will vary from program to program, but may not be more than nine (9) hours.

ADMISSION TESTS

GRE or GMAT scores are required for unconditional admission to all Creighton graduate programs. Applicants for the program leading to the degrees of *Master of Business Administration* (M.B.A.), *Information Technology Management* (I.T.M.), and *Electronic Commerce* (E.C.M.) must have submitted scores on the Graduate Management Test (GMAT). The GRE requirement may be waived for students who hold a previous masters degree. Waiver of this requirement is contingent on an assessment of all elements of a student's record by the department or program to which the student seeks admission.

GRE and GMAT tests are administered by appointment at designated test centers, usually on college campuses, throughout the United States, Canada, and other countries. For further information, contact either the Dean of the Graduate School, Creighton University, or the Educational Testing Service, Princeton, N.J.

Graduate Record Examination (GRE)

The GRE Aptitude Test is required of all applicants except those entering the Master of Business Administration (M.B.A.), Information Technology Management (I.T.M.), or Electronic Commerce (E.C.M.) programs. The GRE Aptitude Test measures the general verbal and mathematical (quantitative) abilities of college seniors or graduates who plan to undertake graduate studies. The GRE Advanced Tests are designed to measure comprehension and knowledge of subject matter basic to graduate study in specific fields. Furthermore, students who may have weak undergraduate credentials are well advised to strengthen their cases for admission by presenting both the GRE Aptitude Test scores and scores on the GRE Advanced Test available in the subject of their proposed graduate study.

Graduate Management Admission Test (GMAT)

GMAT scores are required for all applicants in the Master of Business Administration, Information Technology Management, and Electronic Commerce programs. The Graduate Management Admission Test (GMAT) is an aptitude test designed to measure certain mental capabilities important in the study of management at the graduate level. It contains questions that test one's ability to read, understand, and reason logically with both verbal and quantitative material. The test is not a measure of achievement

or knowledge in any specific subject, and one is neither required nor expected to have had undergraduate preparation in business subjects.

EVALUATION AND SELECTION

The Office of the Dean of the Graduate School compiles the applicant's file (application form, transcripts, GRE scores, letters of evaluation) for all programs with the exception of the Graduate Business Programs. The completed file is forwarded to the appropriate program director for computation of grade-point averages (GPA) for major and support areas, review and recommendation. Recommendations for admission include evaluation by a sponsor (the prospective student's potential faculty adviser) if other than the program director. Students will be notified by the Dean of the Graduate School regarding final action and disposition of the application.

The Graduate Business Program Coordinator compiles the applicant's file for the Master of Business Administration, Information Technology Management, and Electronic Commerce programs.

In addition to the special requirements that may be made by the departments of instruction, the equivalent of a Creighton University undergraduate major is generally required as prerequisite for a graduate major. The qualitative character of the student's undergraduate work is no less important than the quantitative in establishing an applicant's eligibility. The applicant's record of undergraduate studies must generally indicate achievement above average. This superiority must be particularly evident in the field of projected major study.

ADMISSION OF INTERNATIONAL GRADUATE STUDENTS

This school is authorized under Federal law to enroll nonimmigrant alien students.

Candidates for admission from foreign countries must present original and complete educational credentials. Ability to speak and write correct grammatical English is imperative. All foreign applicants are required to take the Test of English as a Foreign Language (TOEFL) and have the scores sent to Creighton unless they can demonstrate proficiency in English in some other way. Acceptance into the University may be granted if the candidate's credentials indicate satisfactory preparation for admission and if the candidate's TOEFL score is 550 or 213 on the Computer-Based Test (CBT) at the graduate level. Foreign students may enroll in Creighton University's English Language Program on a full-or part-time basis in order to improve their English skills.

Once the international candidate has been accepted into the University as a full-time student, an affidavit of support for the cost of at least one semester is required before a certificate of eligibility (Form I-20) will be issued to the student.

Creighton University requires all registered students who are not permanent U.S. residents or U.S. citizens to enroll in Creighton's health insurance group plan offered for international students. The annual premium for 2002-2003 will be approximately \$480 for a single student under age 30 and \$66 for a single student age 30-45. The insurance is valid anywhere in the world during the policy term except the student's home country or country of regular domicile. Coverage for dependents is also available. For more information, contact the Office of International Programs, x-2221.

CLASSIFICATION OF STUDENTS

Applicants for Degrees

Applicants who meet all of the undergraduate prerequisites and other requirements for graduate work in a specific field or field of study are admitted without condition to

the Graduate School by action of the Graduate School Dean upon the advice of the program director. Such applicants are classified as degree students upon enrollment.

Nondegree Students

Nondegree (special) students are understood to have at the time of registration no intention of applying for a graduate degree at Creighton University. Should the student later decide to pursue a degree nine semester hours is the maximum advanced-standing credit allowed in this event.

Auditing Courses

Students will be permitted to register as auditors only for exceptional reasons and with the explicit authorization of the Dean. Not all courses are open to auditors. Auditors are not held responsible for the work expected of regular students, are not admitted to examinations, and receive no grade or credit for the course. Regular attendance at class is expected, however, and auditors are subject the same as regular students to being dropped from the course for excessive absences (in this event auditors receive a W). Changes of registration from credit to audit or audit to credit will not be permitted after the deadline, four weeks after the first day of classes.

A student who has previously enrolled as an auditor may not take the course for credit during any succeeding semester except by special permission of the Dean.

Charges for courses audited are one-half (50%) of the regular per-credit-hour tuition rate when the per-credit-hour rate is applicable. For Summer Session courses, the 50% reduction for auditors applies to the regular rate only, not to the Summer Session discounted rate. Also, special courses, workshops, and institutes offered at a special flat-rate tuition charge are excluded from the auditor discount.

Students seeking to change from credit to audit status will be eligible for a tuition adjustment (if otherwise applicable) only if the change is made with the dean's approval within the period for late registration.

UNDERGRADUATE STUDENTS IN GRADUATE COURSES

Undergraduate students in the second semester of their Senior year are permitted to take courses for graduate credit, provided that they have fulfilled all requirements for graduate work in a specific field or fields. They remain students in the undergraduate college, but must register for graduate courses through the Dean of the Graduate School. Such work, however, will not be accepted as a part of a graduate program unless approved by the Dean.

REGISTRATION

Students must register for each term (semester, summer session, etc.) in which they expect to engage in study. Registration is to be completed within the period specified for a given term. No graduate credit applicable to a degree will be allowed unless a student has formally registered for graduate work at the time of registration for that course.

To facilitate the registration process, continuing students should consult with their academic advisor and participate in the registration process as specified for the coming term. Students who did not complete registration during the previous semester may register on campus during late registration.

Graduate students are offered a mail registration option or a telephone registration option.

Graduate students, under the guidance of the program director, should plan their work carefully so that no changes in the student's Plan of Study (See page 26) should be necessary. When changes seem advisable, they may be made with the approval of the Dean of the Graduate School.

ADJUSTMENTS AND WITHDRAWALS AFTER REGISTRATION

Changes in Registration

Any change after the student's initial registration is permitted only with the written consent of the Dean. Changing from one section to another of the same course does not require the Dean's permission but involves one add.

Dropping Courses

Withdrawal from any course requires sufficient cause and may be made only with the approval of the Dean. After the first week of class (the period for late registration) any petition to drop a course or to change status from credit to audit must include the recommendation of the teacher(s) involved and the student's major adviser before the petition will be acted on by the Dean. Course withdrawals with a W may not be made later than the date posted each semester, which is approximately a week after midsemester grades are available. A student who drops a course without approval of the Dean receives WF for the course (failure because of unauthorized withdrawal).

Withdrawal from the University

A student is considered in attendance until he or she has formally notified the University in person or writing of his or her withdrawal.

Permission to withdraw from the University is granted by the Dean of the School or College in which the student is registered. This is required as a condition of honorable dismissal. After properly filling out the withdrawal card and securing all of the necessary clearances, the student will present the withdrawal card at the Business Office where it will be countersigned and transferred to the Registrar.

The policy of considering a student as withdrawn from the University, after two consecutive weeks of unexplained absence in no way is to be interpreted as allowing withdrawal without formally notifying the Dean in person or in writing of the withdrawal.

A student withdrawing from the University during any semester or summer session before the final examinations forfeits credit for work done in that term. Students who withdraw with permission of the Dean receive W on their official record; those who withdraw without permission of the Dean receive WF for all courses (failure because of unauthorized withdrawal).



TUITION AND FEES

Ordinarily tuition and fees and board and room charges are payable in advance for an entire semester or summer session (see Financial Arrangements).¹ All rates are subject to change without notice.

<i>Application fee</i> for admission as a regular student	\$40.00
<i>Tuition per semester-hour credit (rates effective August 2002):</i>	
a. For courses numbered below 600	507.00
b. For courses numbered 600 and above	507.00
<i>University Fee</i> per semester for graduate students registering for eight or more semester hours	341.00
<i>Student Health Insurance Premium</i> for six months for graduate students registering for eight or more semester hours ²	TBA
<i>Laboratory fee</i> — for each lab course offered by medical departments .	50.00
<i>Laboratory fee</i> — biology for each lab course	39.00
<i>Laboratory fee</i> — chemistry for each lab course:	
a. Courses numbered below 200	39.00
b. Courses numbered 200 and above	46.00
<i>Laboratory fee</i> physics for each lab course	39.00
<i>Graduate Record Examination fee</i> for general or subject area test	48.00
<i>Graduate Record Examination fee</i> (Computerized Version)	93.00
<i>Graduate Management Admission Test fee</i>	52.00
<i>Late payment fee</i>	(See Late Payment Policy-page 33)
<i>Special examination/evaluation fee</i> each such examination or other learning assessment	15.00
<i>Recording fee</i> for each credit hour awarded on basis of examination or other special learning assessment	10.00
<i>Thesis binding fee</i> (graduate) per copy	20.00
<i>Transcripts</i> ³	(no charge as July 1997, see page 48)
<i>Board and room rate</i> per semester	(see pages 19-21)

The tuition charges for courses audited are one-half (50%) of the regular per-credit-hour rate when the per-credit-hour rate is applicable.

Loss or damage to University property and equipment and excessive use of laboratory materials are charged to the student or students responsible.

1 Registration is not complete until financial arrangements have been made.

2 This charge may be waived if the student presents evidence that he or she carries insurance that provides coverage at least comparable to the student insurance offered by the University.

3 Transcripts, grade reports and diplomas are released only when all outstanding balances have been paid.

Property and equipment, including library books, military uniforms, laboratory apparatus, etc., loaned to a student for use during a period of instruction must be returned by the time specified. In case of delinquency, grade reports, transcripts, and diplomas shall not be released until proper return or restitution is made.

FINANCIAL ARRANGEMENTS

Tuition and fees, and board and room charges are payable at the time of registration for a semester. However, arrangements may be made to pay monthly installments by using the University's Monthly Electronic Transfer (MET) plan. Participants in this plan will be limited to the unpaid balance after all financial aid credits have been applied. Folders describing the payment plans and services of MET are mailed to prospective and returning students during the summer.

Books and supplies may be purchased at the Campus Book Store. These items must be paid for when they are obtained.

Students are invited to pay tuition and other expenses by personal check or money order. This is recommended especially to avoid the risk involved in carrying large amounts of cash. All students, particularly those from out of town, are urged to establish checking accounts in Omaha or hometown banks. The University will ordinarily cash small checks for students. (There is a \$200 limit for each student per day in the Business Office.) However, the University reserves the right to revoke or to deny this privilege to any individual at any time.

LATE PAYMENT POLICY

A late payment fee will be added to charges assessed at registration that remain unpaid after the period for late registration. This fee is \$95 for the first month and an additional \$48 for each subsequent month that the account remains unpaid. Accounts with unpaid balances under \$500 will be subject to a \$95 fee the first month and \$37 each month thereafter.

Students with questions regarding their financial responsibilities are invited to contact the Business Office to set up an appointment for individual counseling.

Special Tuition Rates for Teachers and School Administrators and Students enrolled in the Christian Spirituality Program

Teachers and school administrators who are employed full time in public or private elementary or secondary schools and persons who work on a consistent full-time or part-time basis in specific church ministries may take one course each semester (fall and spring) at Creighton at a tuition discount of 50 percent of the regular per-credit-hour rate. Students must complete an Application for Teacher Improvement Remission verifying employment status. These forms are available in the Graduate School Office. Telephone: (402) 280-2870.

The University also reserves the right to exclude certain programs from this special discount. The following programs are currently excluded: Master of Business Administration and Master of Science in Information Technology Management. In the future, other programs may be added or deleted without notice.

Students enrolled in the Christian Spirituality Program (CSP) also qualify for the tuition discount rate based on the Summer Sessions tuition rate. After degree seeking students have completed 12 semester hours in CSP courses, they may apply for grants from the Christian Spirituality Program's own limited financial aid funds.

WITHDRAWALS AND REFUNDS

Students withdrawing before the end of a semester will be charged tuition and recurring fees on the following basis:

<i>Period of attendance from date of enrollment¹</i>	<i>Percent of the semester rate to be charged</i>
During the first week	10%
During the second week	20%
During the third week	40%
During the fourth week	60%
During the fifth week	80%
Over five weeks	100%

Students withdrawing before the end of a summer session 1 the following basis:

<i>Period of attendance from date of enrollment²</i>	<i>Percent of the semester rate to be charged</i>
One or two class days	10%
Three through seven class days	40%
Eight through twelve class days	80%
Over twelve class days	100%

Students withdrawing before the end of the Pre-Session will be charged tuition and recurring fees on the following basis:

<i>Period of attendance from date of enrollment²</i>	<i>Percent of the semester rate to be charged</i>
One or two class days	10%
Three through five class days	40%
Six or seven class days	80%
Eight or more class days	100%

Refunds of room rent for withdrawals will be on the same basis as refunds of tuition.

Non recurring fees, the application fee, the University fee, and penalty fees will be charged in full, regardless of the period of attendance.³

Students assessed tuition per credit hour, including part-time students, graduate students and students in a summer session, will be charged for courses dropped in accordance with the foregoing schedule applicable in the event of total withdrawal.

A student will be considered as having withdrawn from the University after two consecutive weeks of unexplained absence. However, this policy is not to be considered as revoking the regulation which requires a student to notify the Dean in person or in writing of his withdrawal. Refunds are made to the student on the basis of the date he has formally notified the Dean in person or in writing of his withdrawal.

1 Students withdrawing from summer Term 1B (six and one-half weeks and Term 2B (seven weeks) will be charged tuition and recurring fees as follows: during first week 10%, second week 40%, third week 80%, after third week 100%.

2 Class day is any day of the term when any class is in session, regardless of whether or not a specific course is scheduled to be held on that day.

3 The nonrecurring penalty and special service fees include, deferred payment, late payment, change of graduate program, graduate aptitude test, special examination/evaluation, recording thesis binding, tuition grant administrative fee, University fee, and locker fees.

STUDENT FINANCIAL AID

To be considered for financial aid, a student must be accepted for admission as a degree-seeking student.

GRADUATE FELLOWSHIPS

Creighton University offers a number of Graduate Assistantships and Fellowships to graduate students who wish to qualify for advanced degrees. The stipends for assistantships and fellowships vary with the qualifications of the applicants, and the type of service associated with the individual appointments.

In all instances, the appointee must have a Bachelor's degree or its equivalent from a recognized college or university. The previous study and training must be acceptable to the department in which the applicant desires to pursue studies. All appointments are made for one year (academic or calendar year as noted below) by the Dean of the Graduate School in conjunction with the departmental chair. Satisfactory study and cooperation are requisite to reappointment for a second year. Appointments may be terminated by the Dean of the Graduate School whenever it is deemed necessary for the good of the University or when the appointee is academically disqualified.

FELLOWSHIPS

Students appointed to a Fellowship while pursuing a Master's degree are required to provide twenty hours of service per week as assigned by their Department Chair during the nine-month academic year. They are expected to devote full time to their studies. Master's level Fellows must not exceed 18 credit hours in an academic year. These fellowships include a stipend plus the remission of tuition and laboratory fees. All general university fees, however, must be paid by the Fellows.

Students appointed to Research Fellowships while pursuing a doctoral degree have twelve month appointments and are expected to spend as much time in the laboratory as deemed necessary by their major advisor and as dictated by the demands of their program of research. They must take a minimum of eight credit hours during the Fall and Spring semesters and 6 credit hours over the Summer Sessions. Heavier course loads are allowed, if prescribed by their research advisory committees. However, permission of the Graduate Dean is required to take more than twelve credit hours in a given semester. Doctoral fellowships include a stipend, tuition remission, laboratory fees, general university fees and health insurance.

Graduate Fellowships include a stipend plus the remission of tuition and laboratory fees. All general university fees, however, must be paid by Fellows.

The College of Business Administration also has Graduate Research Assistantships available for selected majors in graduate Business Administration programs. The assistantships, although limited in number, provide full tuition and a stipend in exchange for a commitment of 20 hours of service per week during the academic year. The assistant generally is assigned to a faculty member or an academic department for faculty research or assistance in administering the Wade Computer Center in the College of Business Administration.

GRADUATE SCHOLARSHIPS

Graduate Scholarships are reserved for specially qualified or needy students who have completed their undergraduate work with distinction and show promise of successfully engaging in graduate research. These scholarships are intended to facilitate graduate study.

LOAN FUNDS

Eligibility for any Federal aid program requires that at least half-time enrollment (four hours) per term be maintained. Receiving a Graduate School fellowship, scholarship or remission may affect Federal aid eligibility.

Stafford Student Loan (Subsidized)

The Federal Stafford Student (FSSL) is a long-term, low-interest loan borrowed from a lender for which a state or other private nonprofit agency will stand behind the loan. All applicants must file an FAFSA before their eligibility for FSSL program can be determined. The amount that a student may borrow depends on the student's financial need but may not exceed the yearly limit which is \$8,500 per year.

Fees up to four percent of the principal amount of the loan may be charged and normally will be deducted from the loan before it is disbursed. The federal government pays interest on the loan while the student graduates, leaves school, or drop below half-time enrollment. The interest rate is variable, not to exceed 8.25 percent.

Application—Normally the loan application is obtained from the Creighton Financial Aid Office. After the student fills out his/her portion of the application, the school must complete its section of the application prior to mailing it to the lender. If the student defaults on the loan and the lender is unable to collect, the guarantee agency or the Federal government will take action to recover the loan. If the student becomes totally and permanently disabled or dies, the Federal government will discharge the insured loan obligation.

Stafford Student Loan (Unsubsidized)

This loan is nearly identical to the description above, except the Federal government does not provide in-school interest benefits. This loan accrues interest while enrolled. The aggregate amount which may be borrowed under the subsidized and unsubsidized Stafford Loan is \$138,500, including any undergraduate borrowed amounts. The annual maximum is \$10,000, depending on other aid received. For more information, please contact the Financial Aid Office.

Easing Tuition Payments

Creighton University conducts its own Monthly Electronic Transfer (MET) program in cooperation with the student's local bank. Through this plan, students can make tuition payments in ten equal monthly installments. There is a service charge for this option. Monthly Electronic Transfer allows students to budget in regular installments the out-of-pocket expenses that remain to be paid after all financial aid is deducted from total costs. Contact the Business Office for further information.

Important

All financial aid advanced by Creighton University must be used to pay tuition, fees, and University board and room charges before any other direct or indirect educational costs. The stated limits refer to the maximum amount of a loan; the specific amount granted will be governed by funds available at the time of application. All aid received by a student is used to calculate federal loan eligibility, regardless of source.

STUDENT EMPLOYMENT

Departments and offices on campus hire a number of students each year. Many office jobs are filled by Federal Work-Study students, but other jobs are also available on campus, i.e., environmental services, dormitory desk work, food service, libraries, Development, Kiewit Fitness Center, and the Student Center.

The Student Employment Office maintains up-to-date listings of both on-and off-campus part-time and summer jobs. These listings are available through the University's web site under the financial aid/student employment page.

FINANCIAL AID SATISFACTORY ACADEMIC PROGRESS

College of Graduate Studies students are eligible for financial aid consideration for a total of 45 credit hours attempted or until the Masters degree is conferred, whichever comes first. Graduate students must maintain a cumulative QPA of 3.0 and successfully pass 75% of all credit hours attempted.



ADMINISTRATION AND POLICIES GOVERNING GRADUATE STUDY

STUDENT RESPONSIBILITY

Each graduate student is personally responsible for completing all requirements established for his or her degree by the University, the Graduate School, and Department. It is the student's responsibility to inform himself or herself of these requirements. A student's adviser may not assume these responsibilities and may not substitute, waive, or exempt the student from any established requirement or academic standard. The University reserves the right to modify requirements at any time.

Although the University encourages the widest amount of student responsibility, with a minimum of administrative regulation, it expects each student to maintain appropriate standards in his or her academic and personal life. The University reserves the right to terminate the registration of any student who does not meet the standards acceptable to the University.

THE ACADEMIC YEAR

The academic year is divided in two semesters. The first begins in late August and ends before the Christmas holidays; the second begins in mid-January and ends in May.

There is a one week midsemester holiday in the fall, a short Thanksgiving recess, a winter vacation of approximately a month between semesters in the spring. There is a week midsemester holiday and a short Easter recess.

THE SUMMER SESSION

The annual Summer Session includes a three-week pre-session and two five-week terms. There are also six and one-half- and seven-week terms for graduate courses in business. These offer significant opportunities to students who wish to accelerate their studies and satisfy degree requirements or other interests, to teachers who wish to obtain credit for state certificates and/or for professional improvement, etc. A variety of short workshops and institutes on topics of current interest are part of each summer's offerings.

Students may register in one, two, or all three of the basic components of the Summer Session: The Pre-Session, Term 1, and Term 2. The student may earn three credits in the Pre-Session and up to six semester hours of credit in each of the two five-week terms. Master of Business Administration and Information Technology Management students may register for six credit hours during each of the two special sessions (Term 1B — six and one-half weeks and Term 2B — seven weeks) designed for their programs.

UNIT OF INSTRUCTION

The semester hour is the unit of instruction used for computing the amount of work required for graduation. One semester hour is equivalent to one fifty-minute period of recitation or lecture per week for one semester. Two or three fifty-minute periods of laboratory ordinarily are considered equal to one period of recitation or lecture.

COURSE LEVELS

The arrangement and numbering of course offerings according to levels, from introductory and fundamental to advanced, is explained in the introduction to the section on Courses of Instruction Under the numbering system, lower-division courses are numbered from 100 to 299; upper division from 300 to 599; and graduate from 600 to 999.

CLASS ATTENDANCE

Graduate students are expected to attend all lectures and laboratory sessions, except as excused by the instructor. In cases of obvious disinterest, as indicated by absences without reason, the student is subject to dismissal from a course by the Dean at any time during the term.

ACADEMIC LOAD

Twelve credit hours per semester (or six credit hours per summer term) is considered a maximal academic load for a full-time graduate student engaged in study for an advanced degree. Teaching and research fellowship holders are permitted eight to 12 semester hours of credit during semesters in which fellowship obligations are incurred. Students who are engaged in full-time work (within or without the University) should not undertake study for more than six semester hours of credit during their full-time employment. A student who is registered for less than eight semester hours in a semester or less than six hours over two summer terms is classified a part-time student.

RESIDENCE

Ordinarily a student must devote two semesters and a summer session entirely to resident graduate study to complete the requirements for a Master's degree. It is strongly recommended that the major portion of the work for the Master's degree be done during the regular session. However, it is possible for students carrying full schedules in the summer session to meet the quantitative requirements for certain of the Master's degrees within the six-year time limit for completion of a program. Attendance at three summer sessions is regarded as fulfillment of the minimum residence requirement when a student registers for work exclusively in the summer sessions. One full calendar year in attendance is required to meet the minimum residence requirement for the Doctor's degree.

All work for the Master's degree must be completed within six calendar years from the date of credit of the first graduate course in the program; within eight years for the Doctor's degree.

Prerequisite courses taken at the beginning of a planned program do not count in the time determination. If for good reason a program is prolonged, courses taken at the beginning of the period will not be counted in the graduation program.

TRANSFER OF CREDIT

A graduate student's degree program needs to be undertaken largely at the direction of Creighton's faculty. Credit earned with grades A or B at other accredited graduate institutions may be considered for transfer at the time a student's plan of study is constructed. The acceptance of credit offered for transfer will be determined by the Graduate Dean upon recommendation of the student's adviser. However, in no case will more than six transfer credits be applicable toward a Master's degree, nor will more than thirty transfer credits offered by the recipient of a Master's degree from another institution be applicable to doctoral studies at Creighton. Prerequisite undergraduate courses will be accepted in the plan of study (but not count as degree credit) provided they are taken from fully accredited undergraduate colleges. Allowance of credit toward a graduate degree for courses taken as a Special Student (nondegree status) in the Graduate School may not exceed nine semester hours, except in the case of hours earned in preapproved certificate programs.

THE DEGREE PROGRAM PLAN OF STUDY

The student must consult with his or her graduate adviser to prepare a degree program Plan of Study within the first 12 semester hours of residence for a Master's degree, and within the first year of doctoral study. The adviser and the student together will draw up a Plan of Study to be endorsed by the program director, major advisor or research advisory committee and forwarded to the Graduate Dean. The program must list the following:

1. Courses required for removal of undergraduate deficiencies;
2. Courses taken prior to submitting the Plan of Study that apply to the minimum credit requirement;
3. Courses required by the degree program;
4. Elective courses (or course options) that may be taken in application to the minimum credit requirement;
5. Courses taken outside the degree program.

The Plan of Study serves as a record for the Graduate Office, the program director, the adviser, and the degree candidate for monitoring progress in the degree program. The Plan of Study may be revised only upon approval of the adviser, and/or research advisory committee, and the Graduate Dean. Master's degree programs must be completed within six years; Ph.D. degree programs must be completed within eight years.

Policy Statement on Readings and Independent Study Courses

Readings and independent study courses represent an important method for instruction of graduate students who wish to pursue special interests in their degree programs. However, not more than two such courses (6 semester hours) should be included in a 30-semester-hour program, since student interaction and student thesis research should occupy the major program commitment. Prior to authorization of Readings and/or Independent Study credit, program directors will require a written summary of what work will be undertaken, identification of the specific resources to be used, the frequency of meetings between the student and his/her adviser, and the method of assigning quality evaluation to the project. A copy of the summary should be given to the student and the original should be maintained in the student's departmental file until final review to certify degree requirements. This policy is intended to assure graduate-level instruction for the students, and to better define the responsibilities of students and their mentors for completion of graduate readings and independent study projects that are assigned degree credit. A copy of each contract will be kept in the student's file.

THESIS, DISSERTATION AND PROJECT STUDIES

Master's candidates register for thesis Course 799 and doctoral students register for Dissertation 899 in any term in which they are engaged in formal research in connection with, or other formal preparation of, the thesis or dissertation. Normally, the Master's thesis requirements can be met within two semesters. Master's candidates may in unusual circumstances with the permission of the Dean register for six hours of Thesis 799 in a single semester. Normally, however, the student will register for only one three-hour thesis course in a semester.

Because thesis, dissertation, and project studies often do not fit into a convenient timetable for completion, options for extended deadlines are provided. If several registrations are required for completion of the Master's thesis or the doctoral dissertation, the supervisor will assign an I (incomplete) at the end of the term if the work is incomplete but progressing satisfactorily. If the work is not progressing in an acceptable

manner and correction is not made according to a previously negotiated contract, the supervisor will assign a UN (unsatisfactory). The final letter grade for Thesis Course 799 or Dissertation Course 899 will be recorded when reported by the student's adviser after acceptance of the completed manuscript. The time limitation for removing an I for shorter problems or project courses other than 799 or 899 is one calendar year from the date of the first class.

Detailed specifications for preparing thesis or dissertation and for scheduling the defense may be had from the chair of the department. A preliminary copy of the thesis or dissertation should be submitted to the adviser at least two months before the date on which the degree is to be conferred. The thesis or dissertation in its final form must be approved and accepted by the adviser and the advisory committee at least 2 weeks before the degree is conferred.

No student will be permitted to seek publication of thesis or dissertation material without consent of his or her adviser. Violations of this regulation will lead to appropriate disciplinary action by the Dean.

GRADING POLICY

The following policy applies to all course work completed by graduate students at Creighton University.

1. Instructors are expected to explain to their students the grading policies, including the evaluation weights assigned to determination of the final grade in each course, during the first week of instruction.
2. Final grades assigned to graduate students shall be based upon at least three demonstrations of competence by the student which may include tests, papers, projects, recitation, etc.
3. Instructors are expected to provide students with an opportunity to demonstrate competence relevant to determination of the final grade by midsemester.
4. Students should be informed promptly of their scores on each demonstration of competence.
5. Course examinations are intended to evaluate achievement in the understanding and application of course content. Final examinations are scheduled by the Registrar.
6. In no case shall the grade on the final examination represent more than one-half of the course grade.
7. Final grades in course work undertaken by graduate students shall include evaluation of the student's capacity to organize and communicate (in written and/or oral form) the principal concepts and/or applications of the course content.
8. When only laboratory, workshop, and/or technical skills are the subject content of the course, or when conditions listed in Item 2 are not met, the instructor should assign a grade of satisfactory (SA) or unsatisfactory (UN) to indicate the student's participation and competence.

GRADING SYSTEM

A student's scholarship rating in each course is determined by the combined results of examinations and class (and laboratory) work as explained above. This rating is reported by the instructor in accordance with the grading system shown below. Grade reports are issued by the Registrar.

- A Indicates not only outstanding achievement but also an unusual degree of intellectual initiative
- B Indicates attainment above the average, satisfactory for 500-level courses
- C Indicates satisfactory but minimum quality work in courses above the 500-level
- F Indicates failure — no credit
- AF Indicates failure for excessive absences
- WF Indicates failure because of unauthorized withdrawal
- I Indicates work incomplete
- X Indicates absence from final examination
- AU Indicates audited course only — no credit
- SA Indicates work satisfactory
- UN Indicates work unsatisfactory — no credit
- W Indicates official withdrawal from a course — no credit

SA and UN are used to report progress or performance in several instances, e.g., when a course carries no credit, or when laboratory and technical skills only are the subject content of the course; otherwise, an I is given at the end of the term if the work is incomplete but progressing satisfactorily. Use of SA/UN instead of regular grading in any other course is not permitted. Credit earned with SA (Satisfactory) may be counted toward graduation but does not affect the student's QPA; however, UN (Unsatisfactory) functions as a failure in computing the quality-point average.

Incomplete and Absence from Final Examination

The I and X are marks used, as explained below, to reflect a student's irregular status at the time final end-of-term grade reports are due.

I (incomplete). A student who has failed to fulfill all requirements of a course may petition the instructor before the close of the term to assign an end-of-term mark of I indicating incomplete performance. An I may be awarded to graduate students only for reasons of illness, unavoidable travel breaks in the program, or for incomplete work on a thesis or dissertation. An I (incomplete) will not be granted to a student who has been excessively absent during the term or who has simply failed to complete the work of the course before the close of the term without an exceptionally good reason.

The instructor is responsible for determining the appropriate timeframe for completion of the course work and communicating this to the student, preferably in a written contract.

The responsibility for completing all course work rests with the student. The maximum time limit for clearing an incomplete, except in thesis or dissertation, is one year from the start of the course. If the incomplete is not cleared within this limit, it becomes a permanent I; and the student must reregister for and satisfactorily complete the course if credit is desired.

The I does not affect the grade-point average. However, should a student have more than one-third of his credits for a single registration period outstanding as Incomplete he will not be permitted to reregister for additional graduate credit until the incompletes are cleared.

An X is given to a student who missed the regularly scheduled final examination, and the X functions as a failure until it is cleared. If the reason for absence is acceptable to the Dean, an examination must be taken as soon as possible but not later than one month from the date of the regular final examination. A permanent grade is recorded after the final examination is taken. If the examination is not taken as specified or if the reason for absence was not acceptable, the student receives F in the course.

A student who is both incomplete and absent from the final examination will receive both an I and X (IX), which will function as a failure until cleared as specified above.

When an I or X (original entry) is cleared and a final grade, either passing or failing, is assigned, the final grade is entered on the student's permanent academic record beside the I or X and the I or X is bracketed by parentheses. Hence, these marks remain permanently on the student's record.

GRADE REPORTS

Grade reports are made available to students at the end of each term (semester or summer session). A copy of the grade report is also mailed to one of the following: (1) to the parent or guardian if requested by the student; (2) to the superior of religious; or (3) to the student at the home address if the report is not mailed as indicated in (1) or (2). It should be noted that Federal law accords parents of dependent students (regardless of the student's age) the right to grade reports without prior consent of the student. After grades are submitted by the instructors, grade reports are assembled and issued by the Registrar's Office.

QUALITY REQUIREMENTS

It is expected that students in the Graduate School will do a higher quality of work than those in the undergraduate schools. Since no degree is conferred in consequence of mere time fulfillment or credits gained, the student must show performance of a superior quality.

A minimum grade of B is required to earn graduate credit in 500-series (advanced undergraduate) courses; in courses numbered 600 and above, open exclusively to graduate students, the minimum satisfactory grade is C. It does not follow, however, that minimum satisfactory grades will qualify for a degree. Graduate degrees will not be awarded to students who do not possess an overall average of B in the graduate program. Furthermore, graduate students are allowed to incur C grades in no more than six semester hours. C+ or B+ grades are not applicable to rating graduate students in courses being taken for graduate credit (500-series and above.)

The ability to express oneself in idiomatic and grammatically correct English will be regarded as a determining factor in assigning grades, and no one will be allowed to pursue a graduate program unless he or she consistently demonstrates this ability.

ACADEMIC PROBATION AND DISQUALIFICATION

Whenever a student falls below the 3.0 (B) level of achievement the student is placed on probation for one semester. A student who fails to remove probation within one semester is disqualified from the Graduate School. A student who accumulates more than 6 credit hours of C grade, or any one grade less than C, in courses in his or her graduate program is disqualified from the Graduate School.

APPEALS AND PETITIONS

All appeals for removal of probation, appeals of academic suspension, and petitions for change in program are heard by the Board of Graduate Studies. Petitions for transfer of credit are acted upon by the Dean. Petitions are filed in writing to the Dean through the major adviser or program director. In unusual circumstances, appeal of ruling by the Dean may be brought directly to the Board by the student.

Grade Appeals

The instructor has jurisdiction in determining grades; however, the student has the right to appeal a grade that the student believes to be in error. The appeal process may involve the following steps (the issue may be resolved at any level):

1. The student confers with the instructor involved.
2. The student and instructor (preferably together) confer with the chair of the department or program director.
3. When the foregoing steps do not resolve the issue, the student may initiate a formal written appeal to the Dean. Normally, the Dean will forward such appeal to the appropriate committee for its review and recommendation. A formal appeal should not be entered upon lightly by a student, or lightly dismissed by an instructor. A formal written grade appeal may be made no later than the sixth week of the following semester. Under ordinary circumstances, the Graduate Board does not hear appeals of a passing grade.

GRADUATE SCHOOL POLICY ON ACADEMIC RESPONSIBILITY OF GRADUATE STUDENTS

Rationale

All universities are concerned with the cultivation of specialized knowledge and the development of technical skills, and by introducing graduate and post-doctoral students to these disciplinary arts, they preserve, transmit and refine the current body of knowledge and lay claim to their definitions of academic excellence. While research contributing to the advancement of a particular form of intellectual inquiry marks the completion of traditional graduate plans, the end goal of the plan lies in the achievement of certain ways of thinking.

Achievement of graduate educational goals lies in development of analytical independence and conceptual self-consciousness; in the stimulation of creative imagination and critical abilities; in adoption of disciplined thinking and *commitment to personal honesty, intellectual integrity, analytical consideration of competing claims, and respect for the contributions of others* to a common intellectual enterprise. Creighton University has a reputation for developing people of high professional competence; our best graduates combine professional excellence with a healthy capacity to see technical problems in their larger contexts, and to combine imagination, intellect and action into forming a Christian wisdom that extends beyond mere convention.

Policy on Academic Honesty

In keeping with its mission, the University seeks to prepare its students to be knowledgeable, forthright, and honest. It expects and requires academic honesty from all members of the University community. Academic honesty includes adherence to guidelines established by the University, its Colleges and Schools and their faculties, its libraries, and the computer center.

“Academic or academic-related misconduct” includes, but is not limited to, unauthorized collaboration or use of external information during examinations; plagiarizing

or representing another's ideas as one's own; furnishing false academic information to the university; falsely obtaining, distributing, using or receiving test materials; falsifying academic records; falsifying clinical reports or otherwise endangering the well-being of patients involved in the teaching process; misusing academic resources; defacing or tampering with library materials; obtaining or gaining unauthorized access to examinations or academic research material; soliciting or offering unauthorized academic information or materials; improperly altering or inducing another to improperly alter any academic record; or engaging in any conduct which is intended or reasonably likely to confer upon one's self or another an unfair advantage or unfair benefit respecting an academic matter.

Further information regarding academic or academic-related misconduct, and disciplinary procedures and sanctions regarding such misconduct, may be obtained by consulting the current edition of the *Creighton University Handbook for Students*. However, students are advised that expulsion from the University is one of the sanctions which may be imposed for academic or academic-related misconduct.

The University reserves the right to modify, deviate from, or make exceptions to the foregoing or to the *Handbook for Students* at any time, and to apply any such modification, or make any such deviation or exception applicable to any student without regard to date of admission application or enrollment.

ADMISSION TO CANDIDACY FOR AN ADVANCED DEGREE

Admission to the Graduate School does not imply admission to candidacy for the Ph.D. degree. In order to be advanced to candidacy for the Ph.D. degree a student must have previously been admitted to the Graduate School, have completed approximately half the number of hours in the degree program, and passed the comprehensive examination. For the Master's degree, however, the comprehensive examination can be used either to advance students to candidacy for the Ph.D. or, in the case of research-based degrees, be incorporated in the thesis defense.

COMPREHENSIVE EXAMINATION

Each program requiring a written comprehensive examination determines the content of that examination and administers the examination. The student is provided an opportunity to demonstrate general knowledge of the discipline and to give evidence of analytical abilities. The comprehensive examination represents the culmination of intensive formal study and serves to demonstrate proficiencies required for the cultivation of the habit of inquiry. The student should consult with his or her adviser and the faculty throughout the formal study in determining what preparation will be expected.

The comprehensive examination will be scheduled upon recommendation of the student's adviser and program director; ordinarily, the completion of the course work required in the Plan of Study should be anticipated in the semester during which the examination is to be taken. The student is advanced to candidacy upon passing the comprehensive examination.

The program director (or department chair) will notify the Dean of the Graduate School whether the student has passed or failed the comprehensive examination. A candidate who has failed the comprehensive examination will be permitted to take it only one more time, but only after a one-semester study period has been completed. Failure of the comprehensive examination disqualifies the student for the thesis examination or dissertation defense and/or graduation.

THESIS EXAMINATION OR DISSERTATION DEFENSE

A degree candidate who has or will have satisfactorily completed the minimum credit Plan of Study, the comprehensive examination, and the draft of his or her thesis or dissertation will be permitted to undertake an oral defense of the thesis or dissertation. The thesis or dissertation committee will have conferred with the candidate and had a suitable copy of the manuscript in their hands at least 30 days prior to the oral examination and defense.

The Master's degree candidate's committee will be chaired by the student's major adviser and will include at least two other faculty members qualified in the student's major discipline. If the committee is composed of only three faculty members, the Dean of the Graduate School will appoint a graduate faculty observer from outside the major department.

The Doctor's degree candidate's committee shall consist of the major adviser (chair), two faculty members qualified in the major discipline, two faculty members qualified in support areas of study, one expert faculty member (or visiting professor) from the subject of specialization. The subject of the examination shall be the background, methods, results, and conclusions of the student's dissertation and the relationship of these results and conclusions to the major discipline. The dissertation defense will be open to all graduate faculty, although faculty from outside the committee may not participate directly in the examination.

APPLICATION FOR DEGREE

Each candidate must file with the Registrar a formal application for the degree. This must be done in advance of the time one wishes to receive the degree, namely, by October 1 for graduation at the end of the First Semester, by February 15 for graduation at the end of the Second Semester, and by June 15 for graduation at the end of the Summer Session.

If for some reason a degree is not awarded after application is made, it will be necessary for the student to file another Application for Degree by the deadline of the term when the degree requirements are expected to be met.

Eligibility of a student for a degree depends on successful completion of all requirements established for the degree sought. Further, to receive a degree a candidate must be of good moral character and must have discharged all financial obligations to the University.

COMMENCEMENT

Annual University Commencement ceremonies are held in May and December. Students who complete their degree programs in the Spring Semester **are required to be present** at the Annual Commencement Exercises in May to receive their degrees. Students who complete their degree programs in the Fall Semester may attend Commencement ceremonies in December. Diplomas will be mailed upon confirmation of the completion of all degree requirements by the respective Dean. Students who complete their degree programs during the summer receive their degrees at the end of the Summer Sessions, but no ceremony is held; these students may participate in the preceding May Commencement if their advisor and program director have sufficient evidence to reasonably assure the student will complete all requirements for an August degree conferral. All candidates who receive degrees at the end of a Fall Semester or Summer Session are listed in the next Annual Commencement Program.

NOTE: A student may participate in only one Commencement ceremony for each degree granted.

To participate in the May Commencement, a candidate must have successfully completed all degree requirements and must be approved for graduation, or be able to and plan to complete all requirements by the date for conferral of degrees in the following August. The respective deans of the Schools and Colleges of the University shall have the responsibility for clearing all participants in the Commencement. Those participants in the May ceremony who have not completed all degree requirements shall be so designated in the Commencement Program.

DISCIPLINE

The primary purpose of discipline is educational in nature and is aimed at the development of responsible student conduct.

The University has the right and duty to protect its educational purpose through setting and maintaining standards and regulations considered essential to its purpose. The *Student Handbook* describes disciplinary procedures and penalties, which may include suspension or expulsion from the University.

CONFIDENTIALITY OF STUDENT RECORDS

Creighton's policy relating to the confidentiality of student records is in keeping with the "Family Educational Rights and Privacy Act" (FERPA). Information about students or former students will not be released without the consent of the student other than in the exceptions stated in the Federal Act. FERPA affords students certain rights with respect to their educational records. They are:

1. The right to inspect and review the student's education records within 45 days of the day the University receives a request for access.

Students should submit to the Registrar, Dean, Department Chair, or other appropriate official, a written request that identifies the record(s) they wish to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the official to whom the request was submitted, that official shall advise the student of the correct official to whom the request shall be addressed.

2. The right to request the amendment of the student's education records that the student believes are inaccurate or misleading.

Students may ask the University to amend a record that they believe is inaccurate or misleading. They should write the University official responsible for the record, clearly identifying the part of the record they want changed, and specify why it is inaccurate or misleading.

If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosures without consent.

One exception which permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the University in an administrative, supervisory, academic or research, or support staff position (including Public Safety personnel and Student Health staff); a person or company with whom the University has contracted (such as an attorney, auditor, collection agency, the National Student Loan Clearinghouse or the Voice FX Corporation); a person serving on the Board of

Directors; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks.

A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.

Upon request, the University discloses educational records without consent to officials of another school in which the student seeks or intends to enroll.

FERPA also allows the University to disclose directory information without the written consent of the student. Directory information is information contained in an education record of a student which generally would not be considered harmful or an invasion of privacy if disclosed. Directory information includes the student's full name, the fact that the student is or has been enrolled, full time/part time status, local and permanent address(es), e-mail address, telephone number(s), date and place of birth, dates of attendance, division (school or college), class, major field(s) of study and/or curriculum, degrees and awards received, participation in officially recognized activities and sports, weight and height of members of athletic teams, photograph, and previous educational agency or institution attended by the student.

A currently enrolled student may request any or all directory information not be released by completing and filing with the Registrar's Office a statement entitled "Student Request To Restrict Directory Information." Such filing of this request shall be honored for the remainder of the term in which the request is filed, except that such restriction shall not apply to directory information already published or in the process of being published.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by Creighton University to comply with requirements of FERPA.

The name and address of the office that administers FERPA are:

Family Policy Compliance Office
U.S. Department of Education
600 Independence Avenue, SW
Washington, DC 20202-4605

TRANSCRIPTS

A copy of the student's academic record is called a transcript and is issued by the University Registrar upon written request of the student. A special Request for Transcript form is available at the Registrar's Office, A226. Copies are not made of transcripts of records on file from other institutions. Any additional copy of these must be requested by the student direct from the original issuing institution.



THE GRADUATE PROGRAMS

DEGREES AND MAJOR FIELDS OF STUDY

For the degree of Master of Arts *Plan A* or *Plan B*

Christian Spirituality Theology
International Relations Liberal Studies
English

For the degree of Master of Science

<i>Plan A</i>	<i>Plan B</i>
Atmospheric Sciences	Atmospheric Sciences
Biomedical Sciences	Clinical Anatomy
Biochemistry	Counseling
Bioorganic Chemistry	Elementary-School Counseling
Cell and Developmental Biology	Secondary-School Counseling
Molecular Biology	School Counseling
Neurobiology	Community Counseling
Physiology	College Counseling and Student Development Services
Medical Microbiology and Immunology	Education
Nursing	Elementary School Administration
Pharmaceutical Sciences	Secondary School Administration
Physics	Electronic Commerce
	Information Technology Management
	Mathematics
	Nursing
	Physics

For the degree of Master of Business Administration

Business Administration

For the degree of Master of Computer Science

Computer Science

For the degree of Master of Education in Secondary Teaching

Secondary Education

For the degree of Master of Health Services Administration

Health Services Administration

For the degree of Doctor of Philosophy

Biomedical Sciences
 Biochemistry
 Bioorganic Chemistry
 Cell and Developmental Biology
 Molecular Biology
 Neurobiology
 Physiology
Medical Microbiology and Immunology
Pharmacology

NOTE: For a detailed description of the various graduate programs, their objectives, prerequisites for admission, and requirements, please refer to the following section of this bulletin on Courses of Instruction. The department (subject/majors) and programs are listed in alphabetical order.

MASTER OF ARTS AND MASTER OF SCIENCE

Programs for these degrees are organized under three plans: The first, *Plan A*, requires a thesis, while the two divisions for *Plan B* do not. *Plan A* emphasizes depth of study and training in research methods in a specialized field. *Plan B* emphasizes breadth as well as depth in the pursuit of graduate-level study of a major field with one or two minor areas.

The degree of *Master of Arts* (M.A.) is conferred under Plan A or Plan B in the fields of Christian spirituality, English, international relations, ministry, and theology. Minor work is available in economics, political science, and theology. Under Plan B the degree is conferred for studies with one or two minors in addition to the major field in the areas of communication arts, humanities, and social studies.

The degree of *Master of Science* (M.S.) is conferred under Plan A in the fields of atmospheric sciences, biomedical sciences, mathematics, medical microbiology and immunology, nursing, pharmacology, pharmaceutical sciences, and physics. Under Plan B the degree is conferred for area studies in the fields of atmospheric sciences, electronic commerce, information technology management, mathematics, nursing, and physics; the following specialized areas of counseling: elementary-school counseling, secondary-school counseling, school counseling, community counseling, and college counseling and student development services; and the following specialized areas of education: elementary-school administration, secondary-school administration.

MASTER OF BUSINESS ADMINISTRATION

The degree of *Master of Business Administration* (M.B.A.) is conferred for work done in an evening program of graduate-level courses in the area of business administration. The primary objective of this evening program is to provide an opportunity for qualified men and women to develop knowledge, abilities, attitudes, and understandings that will constitute a foundation for their growth as effective administrators and creative leaders in business, industry, and government. Effective managerial decision-making is stressed rather than advanced study in a single area of concentration.



Master of Business Administration-Juris Doctor Combined Program

The College of Business Administration, which administers the Master of Business Administration program, and the School of Law, which administers the J.D. program, have defined courses that can be used to satisfy elective requirements in each program. This enables students seeking both the *Master of Business Administration* and *Juris Doctor* degrees to request acceptance of up to 15 hours of these defined courses, thus reducing the time required to secure both degrees by approximately one semester. Since all M.B.A. courses are offered in the evening (including Summer Session), it is possible to complete both programs in a total of three calendar years if a student has completed all of the MBA foundation courses.

Each candidate for the coordinated program must make separate application to, and be independently accepted by, the School of Law and the College of Business Administration. Although the student must meet all admission requirements of each program, acceptance does not have to occur simultaneously. However, the student must make application for the second program while still actively enrolled in the first to be considered for the combined program. The Law School will accept in transfer toward the J.D. degree a maximum of nine credit hours of the M.B.A. curriculum. The M.B.A. program will accept in transfer toward the M.B.A. degree a maximum of six credit hours of the Law School curriculum in elective courses for which the student receives a grade of C or better on the Law School scale. Uniform Graduate School requirements will be maintained for M.B.A. graduation. The final decision on transferability of credits rests with the Associate Dean of the Law School and the Director of Graduate Business Programs. Further details concerning the coordinated program may be obtained from the Associate Dean of the Law School or the Director of Graduate Business Programs College of Business Administration.

Doctor of Pharmacy/Master of Business Administration Degree Program (Pharm.D./M.B.A.)

The joint Pharm.D./M.B.A. program is a cooperative venture between the School of Pharmacy and Allied Health Professions and the College of Business Administration. The program allows Pharm.D. students to complete an M.B.A. degree during the time it takes to complete the Pharm.D. degree in less time and with less expense than if the two degrees were pursued separately. The program is designed assuming students have no business foundation courses completed beyond what is already required in the pre-professional component of the Pharm.D. program. If a Pharm.D student has taken business foundation (prerequisite) coursework, the relevant foundation courses will be waived and the student may finish the program in fewer hours.

Pharm.D. students must have accumulated at least 120 credit hours in order to be considered for admission to the M.B.A. program. A maximum of six credit hours of Pharmacy electives can be applied toward the nine hours of electives required for the M.B.A. degree. Further details concerning this joint program may be obtained from the Director of Admissions for the School of Pharmacy and Allied Health Professions or the Coordinator of the Graduate Business Programs.

Master of Business Administration/Master of International Relations Degree Program (M.B.A./M.I.R.)

Students have the option of obtaining an M.B.A./M.I.R. degree as part of a joint degree program offered by the College of Business Administration and College of Arts and Sciences. The program allows students to combine the strategic business training of the M.B.A. degree with the global perspective of the M.I.R. program. Candidates for this joint program must make separate application to, and be independently ac-

cepted by, the Graduate School and the College of Business Administration. Although the student must meet all admission requirements of each program, acceptance does not have to occur simultaneously. However, the student must make application for the second program while still actively enrolled in the first in order to be considered for the combined program.

The program allows M.B.A. students to take six hours of M.I.R. courses and apply them toward the nine hours of electives needed for the M.B.A. degree, while up to six hours of M.B.A. coursework may be applied as electives for the M.I.R. program. Further details concerning this joint program may be obtained from the Director of the Graduate Program in International Relations or the Coordinator of the Graduate Business Programs.

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY MANAGEMENT

The Master of Science in Information Technology Management (M.S.) is a 33 credit hour program, that is designed to creatively synergize information technology and management practices. It is applied in orientation, and current to meet the demands of a constantly changing technological environment. Students receive comprehensive information technology education, while working toward the specialization best suited to their professional goals.

M.B.A./M.S. DUAL DEGREE PROGRAM

The M.B.A./M.S. Dual Degree Program enables students to earn both the M.B.A. and M.S. degrees in a streamlined 48 credit hour program, considerably less time than if the degrees were earned separately. With both degrees, students will have an impressive collection of managerial and technology skills and competencies. The dual degree program combines the managerial technology synergies of M.S. degree with the depth of the managerial education found in the M.B.A. degree. Students must apply for the second program before completing the requirements for the first degree and have three years after graduating with the first degree in which to complete the second degree. For more information on the dual degree program contact the Coordinator of Graduate Business Programs.

Requirements for Second Master's Degree - Master of Business Administration (M.B.A.) or Master of Science in Information Technology Management (M.S.)

Persons who have earned an M.B.A. or M.S. degree at Creighton University, but who did not participate in the dual degree program, may complete the requirements for and earn a second degree, either an M.B.A. or M.S. The student must complete all the requirements for the second degree except for six semester hours (MBA 772/773, MBA 777/778 or ITM 731 and three elective hours).

The second degree program requires completion of an additional 27 semester hours of credit in required and elective courses. If any of the courses required in the second degree program were completed as requirements in the first degree program, the student, with the approval of the adviser, will select alternate courses appropriate to the second degree program.

MASTER OF SCIENCE IN ELECTRONIC COMMERCE

The Master of Science in Electronic Commerce (M.S.-E.C.M.) is a 33 credit hour program, that is designed to prepare students to assume leadership positions in the rapidly expanding field of e-commerce. Coursework in the program is a mix of the technical, business, legal, and ethical aspects of conducting electronic business. Gradu-

ates will understand the strategies and tactics of e-commerce and will be able to apply them in the changing business environment.

Juris Doctor/Master of Electronic Commerce (J.D./M.S.-E.C.M.)

The J.D./M.S.-E.C.M. Degree Program enables students who are interested in the legal, business, and technical aspects of e-commerce to earn separate J.D. and M.S. degrees in less time than if each degree were earned separately. This program, the first of its kind in the nation, provides students an excellent opportunity to maximize and concentrate their education in the exciting arena of e-commerce and law.

Candidates for this combined program must make separate application to, and be independently accepted by, the School of Law and the College of Business Administration. Although the student must meet all admission requirements of each program, acceptance does not have to occur simultaneously. Students must apply for the second program before completing the requirements for the first degree and have three years after graduating with the first degree in which to complete the second degree.

Up to six hours of law school coursework, including LAW 397 may be applied toward electives in the M.S. program, while up to 12 hours of business coursework may be applied as electives for the J.D. program. Further details concerning the combined program may be obtained from the Associate Dean of the Law School or the Coordinator of the Graduate Business Programs in the College of Business Administration.

Graduate E-Commerce Certificate

This certificate consists of 11 credit hours of course work, in addition to any prerequisite requirements (courses and/or work experience) necessary for enrollment in these courses.

ECM 701 – Commerce in the Digital Age (2)

3 courses (9 hours) from the following list. At least 1 course must be taken from each category below:

E-Commerce Technology

ECM 782 – Data Base Management Systems (3)

ECM 710 – Development Technologies for the Web (3)

ECM 734 – Human Factors in Information Systems (3)

E-Commerce Management

ECM 760 – E-Commerce and Marketing (3)

ECM 770 – Security & Control in E-Commerce (3)

ECM 775 – Strategic Issues in E-Commerce (3)

Course Prerequisite Structure:

ECM 701 – Instructor consent

ECM 710 – ECM 734 or demonstrated experience with Dreamweaver and basic Javascript

ECM 734 – One semester of a programming language or equivalent experience

ECM 782 – ECM 701 or ITM 731 or Instructor consent

ECM 760 – MBA 562 or Instructor consent

ECM 770 – ECM 710 & ECM 782 or Instructor consent

ECM 775 – ECM 760 & ECM 770 or Instructor consent

Applicants for the Graduate E-Commerce Certificate are required to submit all of the following documents in order to apply for the certificate program: completed application form, current resume, \$40 administrative processing fee, one official transcript from each college or university attended to be sent directly by the college or university to the Coordinator of Graduate Business Programs; two current letters of recommendation, and official Graduate Management Admissions Test (GMAT) score report. Note: the GMAT is not required if applicants have at least three years of professional work experience or a 3.0 cumulative undergraduate QPA.

MASTER OF COMPUTER SCIENCE (M.C.S.)

The graduate program in computer science is designed primarily for students with a bachelor's degree in computer science. The program provides the graduates with a core of common skills and experience in hardware, software, algorithms, languages and data structures while focusing on specialized areas of artificial intelligence and knowledge engineering; information processing and management; and computer applications of mathematical sciences. This breadth of general knowledge of the computing field coupled with in-depth substantive knowledge in specialized areas is designed to provide a solid foundation for immediate job success as well as longer term career objectives.

A *Master of Computer Science* degree is offered with both a thesis (option A) and non-thesis (option B). Students in option A will be required to complete a total of 30 approved credit hours in course work and submit a thesis. Students in option B will be required to complete a total of 33 approved credit hours of course work and submit a major report. In either option the student would have the opportunity to specialize in one of the three areas: artificial intelligence and knowledge engineering, computer applications of mathematical sciences, and information processing and management. The program is open to candidates engaged in full-time study and also to candidates employed in industry and business who wish to study on a part-time basis. Students will be allowed freedom to choose their own area of concentration and their adviser.

Master of Science in Information Technology Management/Master of Computer Science Degree Program(M.S.-I.T.M./M.C.S.)

The M.S.-I.T.M./M.C.S. degree is a joint program offered by the College of Business Administration and the College of Arts and Sciences. It allows students to combine the highly technical training of the M.C.S. program with the strategic and managerial focus of the M.S.-I.T.M. degree. Candidates for this joint program must make separate application to, and be independently accepted by, the Graduate School and the College of Business Administration. Although the student must meet all admission requirements of each program, acceptance does not have to occur simultaneously. However, the student must make application for the second program while still actively enrolled in the first in order to be considered for the combined program.

The M.S.-I.T.M./M.C.S. program allows M.S.-I.T.M. students to take six hours of M.C.S. coursework and apply them toward the 15 hours of electives needed for the M.S.-I.T.M. degree, thereby allowing the student to select electives that fit their individual interests.

MASTER OF EDUCATION (M.ED.) IN SECONDARY TEACHING

These programs are designed for college graduates (with certain undergraduate degrees) who are interested in earning their Nebraska teaching certificate with a master's degree. These programs are accredited/approved by state, regional, and national accrediting agencies, including the National Council for Accreditation of Teacher Education (NCATE), the Nebraska Department of Education, and the Department of Education at Creighton University. Secondary (7-12) teaching endorsements are offered in the following subjects: Art, Computer Science (supplemental), English, Journalism, Language Arts, Mathematics, Languages (French, German, Latin, and Spanish), Sciences (Biology, Chemistry, Natural Sciences, and Physics), Social Sciences (History, Political Science, Psychology, and Sociology), Speech/Drama, and Religious Education.

There are two ways that this 44-credit degree can be pursued.

-Accelerated M.Ed. in Secondary Teaching Program. This option is for students seeking to receive a standard master's degree. Courses are offered at a 50% tuition discount. Courses required are: EDU 503, 507, 510, 525, 548, 551, 552, 583, 591, 592, 593, 615, 692; plus one of the following: EDU 660-670; plus 2 electives.

-Mentoring Academic Gifts In Service (M.A.G.I.S.) Program. This option seeks to develop a core of highly motivated teachers to serve in underserved Catholic Schools. Each year a new cohort is admitted into the program. Upon acceptance, MAGIS teachers will make a commitment for two years to live in community and pursue professional and spiritual development while serving as full-time teachers in selected Catholic schools. This program is offered at no tuition cost to the participants. Courses required are: EDU 503, 507, 510, 520, 525, 548, 551, 552, 583, 615, 680, 681, 686, 687, 688, 689, 692; plus one of the following: EDU 660-670.



MASTER OF HEALTH SERVICES ADMINISTRATION

The Master of Health Services Administration (HSA) Program is designed to prepare graduates to assume leadership positions in health services organizations, such as, hospitals, long-term care facilities, insurance companies, community health organizations, managed care organizations, medical group practices, integrated delivery systems, etc.

The interdisciplinary MHSA curriculum will include content and learning experiences that enable students to acquire knowledge and skills necessary to meet criteria specified by the Accrediting Commission on Education for Health Services Administration (ACEHSA).

Graduate Certificate in Health Services Administration

The Graduate Certificate in Health Services Administration, a cooperative effort of the College of Business Administration and the Master of Health Services Administration Program, is designed to offer specialized health care content to students who choose to pursue the Master of Business Administration (M.B.A.) degree at Creighton University. M.B.A. students may utilize three courses from the list below (HSA 603, HSA 607 and HSA 613) as electives toward the M.B.A. degree. The attainment of the Certificate will require completion of the additional two-hour course (HSA 605).

- HSA 603 – Contemporary Health Services Management (3)
- HSA 607 - Law, Policy, and Regulation in Health Services (3)
- HSA 613 – Health Economics (3)
- HSA 605 – Interdisciplinary Service to Patients and Populations (2)

DOCTOR OF PHILOSOPHY

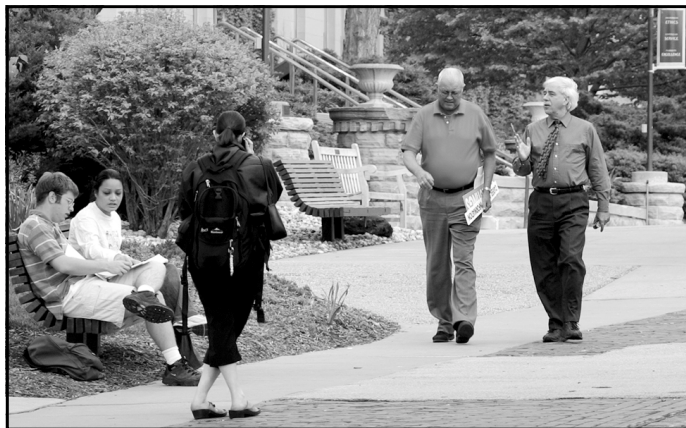
The degree of *Doctor of Philosophy* (Ph.D.) is offered in the departments of Biomedical Sciences, Medical Microbiology and Immunology, and Pharmacology. The program will ordinarily consist of 90 semester hours beyond the Bachelor's or 60 hours beyond the Master's degree. Evidence of exceptional scholastic attainment and high aptitude for research will be demanded. The student must maintain satisfactory grades, pass a qualifying examination, and meet the requirements of the Graduate School and the major department. The Ph.D. degree will be awarded after fulfillment of all requirements and successful defense of the dissertation.

SUMMARY OF GENERAL REQUIREMENTS FOR ADVANCED DEGREES

The requirements for graduation depend upon the particular program of study undertaken. Specific program and departmental requirements are listed in the next section of this Bulletin on Courses of Instruction. The following requirements apply to all programs:

1. Admission to advanced study programs requires the presentation of complete transcripts of all collegiate work, three letters of evaluation, adequate GRE or GMAT scores and a Bachelor's degree (or equivalent) with a major in the discipline to be undertaken in graduate study.
2. The candidate for an advanced degree must earn at least a 3.0 (B) average in all graduate work taken at this University and have accumulated a minimum residence requirement of 24 credits if in a Master's program with the thesis option (Plan A), 27 credits if in a Master's program which does not require a thesis (Plan B), or 60 credit hours beyond the Master's degree if in a Ph.D. program.

3. Master's degree programs with the thesis option must contain a minimum of 30 credits, and non-thesis programs, a minimum of 33 to 36 credits; Ph.D. programs must contain a minimum of 90 credits beyond the Bachelor's level.
4. No graduate-level course (600-899 series) with a grade lower than C may be applied toward the fulfillment of degree requirements. Courses taken from the advanced undergraduate series (500-level) may be applied toward degree requirements provided they are passed with a grade of B or higher, and provided they do not exceed one-half the course credits required in the entire program for a Master's degree. In Ph.D. programs, approved 500-level courses may be included within the first 30 hours; thereafter all courses must be exclusively graduate level.
5. A thesis or project (790 series) must be completed in partial requirement for a Master's degree with no fewer than three or more than six credits allowed toward fulfillment of Master's degree research requirements. Doctoral dissertation credits may accumulate to 20 hours in the Ph.D. program, and the total research credit permitted in Ph.D. credit requirements may not exceed 45 semester hours.
6. A thesis, dissertation, project or a final comprehensive examination must be satisfactorily completed to qualify for graduation. Failure of the comprehensive examination or the thesis/dissertation requirement of a program is failure of both options. The comprehensive examination may be repeated once after a minimum one-semester study period.
7. All requirements for Master's degrees must be completed within six years of the date when the program was initiated (i.e., when the first credit applying to the degree was earned). Ph.D. programs must be completed within eight years.
8. A graduate student who expects to receive a degree within a particular academic term must have been advanced to candidacy, applied for the degree, and fulfilled all degree requirements during that term. Consult the calendar of deadlines. The student must ordinarily be enrolled during the term in which the degree is expected.
9. Proficiency of a student in any and all parts of the curriculum is properly ascertained by the graduate faculty. A favorable vote of the faculty is required for a student to receive an advanced degree.



COURSES OF INSTRUCTION

INTRODUCTION

The courses of instruction are listed here by department (subject) or program in alphabetical order.

Only the names of those faculty members of each department who are giving graduate instruction are listed in this bulletin.

Three-letter symbols are used to designate the different departments (subjects), for example, BMS for Biomedical Sciences, EDU for Education, MTH for Mathematics, etc. These symbols are used to identify the subject area of course offerings in schedules, grade reports, transcripts of records, etc.

The courses listed in this *Bulletin* are a statement of the plans of the various departments covering the period from the 2002 Summer Session to the Second Semester of 2003-2004. Also included as a matter of record are courses that were given during the period covered by the last issue of the *Bulletin* for the Graduate School (Vol 85, No. 3) published in July, 1998, but did not appear in that issue. A special *Bulletin* for the courses offered in the Summer Session is published early each year.

Some required graduate courses are offered annually; some courses are offered biennially; others are offered in three-year cycles, or upon sufficient demand.

The University reserves the right to modify or to cancel any of the courses listed.

COURSE NUMBERING SYSTEM

Courses appearing in this *Bulletin* are numbered according to the following system:

- 001-099 Pre-College level courses (not applicable to a degree).
- 100-299 Lower-division courses (when applicable, 100-199 freshmen; 200-299 sophomores) undergraduate credit only.
- 300-499 Upper-division courses (when applicable, 300-399 junior; 400-499 senior) undergraduate credit only.
- 500-599 Advanced upper-division courses in which graduate students may enroll and receive graduate credit. (It is assumed that graduate students will perform more requirements and be graded more strictly than undergraduates.)
- 600-799 Graduate courses. (Master's and Doctoral level).
- 800-899 Graduate courses. (Limited to doctoral candidates).
- 900-999 Post-doctoral (or post-terminal) degree courses only.

Occasionally departments revise the sequence of their courses. When a course number is changed, the former number is retained in parentheses for convenience in identification.

The credit value of each course is included with its description. Unless indicated otherwise, the class meetings per week normally equal the number of semester hours of credit shown for the course. For example, for a three-semester hour course there are three fifty-minute class periods or their equivalent held each week of the semester. During summer sessions, class periods are held five days a week and the class periods are lengthened; hence, an equivalent amount of class time is devoted to a course whenever it is given.

KEY TO SYMBOLS

The standard course description includes a variety of symbols or abbreviations indicating essential information. The following is a sample course description with the individual symbols explained in the order in which they appear in that description.

BMS 605 Molecular Endocrinology (3) I 1995-96, AY

Study of the function of endocrine glands at the organismal, cellular and molecular level.
3C & D. P: BMS 601 or equiv. or IC.

BMS Department (subject or discipline) abbreviation. Standard three-letter symbols are used throughout the University to identify the subject fields.

605 Course number. If a course has been renumbered, the old course number appears in parentheses following the new number.

Molecular Endocrinology—Course title

(3) Credit value of the course in terms of number of semester hours of credit.

I Term offered. I indicates fall semester; II indicates spring semester; S indicates summer session; PS indicates pre-session; W indicates winter interterm; M indicates mini-semester.

1995-96 Year in which course offered. If no year designation is given, course is offered each year during the term(s) indicated, unless the symbol OD (on demand) appears indicating that the course is offered only when there is sufficient demand.

AY Alternate year, indicating that the course will be offered every other year after the term and year shown.

S (OD) Indicates the course is also offered in the summer session on demand.

ENY, ONY Indicate that course is offered in term shown of even-numbered years (ENY) or odd-numbered years (ONY).

3 C & D Class structure. R, L, S, C, D, Q indicate “recitation—lecture,” “laboratory,” “studio,” “conference,” “discussion,” “quiz.” Hence, 3C & 3D indicate three hours of conference and three hours of discussion per week. For courses consisting of lecture-recitation periods only, the number of class hours per week, unless indicated otherwise, is the same as the credit value of the course and is not specified in the course description.

P Prerequisite: the preliminary requirement that must be met before the course can be taken. When prerequisites are set forth in the introductory statements preceding the course listings, they apply as indicated even though not repeated with the individual course descriptions.

CO Corequisite: a requirement, usually another course, that must be completed in the same term.

IC, DC IC, instructor consent, and DC, department consent, signify that a student must have the permission of the department or instructor in addition to or in lieu of other course prerequisites.

NOTE: Not all of the foregoing information may be noted in any individual course.

ANATOMY See Department of Clinical Anatomy

ATMOSPHERIC SCIENCES (ATS)

Associate Professor Douglas (Chair); Assistant Professors Ramage and Schrage; Part-Time Lecturers Byrd, Miller, McAtee, McDonald, and Ritz,.

Programs and Objectives

Master of Science (M.S.) Program

Creighton University offers courses and experience leading to the Master of Science degree with a major specialization in Atmospheric Sciences or Environmental Sciences. The purposes of this program are to provide professional-level graduate education appropriate to preparation for advanced careers in meteorology, and the environment, with such agencies as the National Weather Service, the United States Air Force Weather Service, and various environmental and meteorological research and management organizations within the government and private industry. The program is available under a thesis (Plan A) or non-thesis (Plan B) approach, as outlined below.

Prerequisites for Admission

Applicants holding a Bachelor of Science degree in meteorology, physics, or related natural and/or physical sciences, with undergraduate grade point averages of at least 3.0 are preferred. Graduate Record Examination (GRE) scores are required of all applicants; no advanced tests on the GRE are required.

Degree Requirements

The Masters Degree program is structured as outlined in the following paragraphs. The overall basic requirements are presented in Table 1.

Table 1. Credit Hour Requirements

Total Credits Required: 33

Minimum Credit Hours from Courses 600-Level and above: 18

Considering the diversity of student backgrounds presented by the prospective students, the Masters Degree program offers a generalized approach built upon a basic foundation (500-level course requirements), then branching to a structure associated with specialized areas of concentration (600-level course requirements). The students may take either of two approaches to completing the degree, Plan A, the traditional original research thesis or Plan B, the option to take a non-thesis approach. Under Plan B, the student may complete 33 credits of regularly scheduled classes, or may complete their studies with ATS 797, leading to a Departmental-level seminar and paper of potentially publishable quality and length.

Core Preparation Requirements:

The Masters Degree program offers two core tracks, with further specialization and concentration becoming available as the student's work progresses. This course sequence is designed to prepare the students for the more rigorous demands of the 600-level offerings required for degree completion. Students would be required to take at least 15 hours from either core track.

Atmospheric Core

Designed for students interested in enhancing current forecasting skills or diversifying into broader areas for continuing future studies, the contents of this core area are presented in Table 2.

Table 2. Atmospheric Core Course Content

ATS	542	Radar Meteorology
	545	Mesoscale Meteorology
	552	Boundary Layer Meteorology
	553	Tropical Meteorology
	555	Satellite Meteorology
	561	Synoptic Meteorology I
	562	Synoptic Meteorology II
	564	Statistical Applications
	571	Dynamics I
	572	Dynamics II
	573	Cloud Physics and Dynamics

Note: Students entering the Masters Degree program who do not have a Bachelors in Meteorology/Atmospheric Sciences may take these classes for inclusion in their degree program.

Environmental Core.

Designed for students interested in the identification, measurement, and assessment of environmentally oriented aspects of atmospheric sciences, the contents of this core area are presented in Table 3.

Table 3. Environmental Core Course Content

ATS	541	Diffusion, Pollution and Environmental Impact
	542	Radar Meteorology
	544	Hydrology
	552	Boundary Layer Meteorology
	553	Tropical Meteorology
	555	Satellite Meteorology
	562	Synoptic Meteorology II (4 Hours)
	564	Statistical Applications
	574	Stratospheric Dynamics
BIO	523	Environmental Toxicology
	540	Flora of the Great Plains
	545	Applied Limnology and Water Quality
	549	Environmental Physiology
	561	Entomology
	571	Animal Behavior
	572	Animal Behavior Lab
	581	Evolution
CHM	506	Environmental Chemistry

Individual Advanced Core Specialization:

The student is presented with the opportunity to focus the remainder of their program in one or more areas of study depending upon their interest and need. At least 18 hours are to be taken from these additional Department offerings. Normally, no more than 3 hours may be credited towards a degree from among 646, 670, and/or 793, and up to 6 hours from 795/(Independent Study), 797 (Independent Research)/799 (Master’s Thesis). Table 4 lists advanced core offerings of the recent past, illustrating the diversity available to the student.

Table 4. Typical Advanced Core Offerings

ATS	615	Radar and Severe Storms
	624	Advanced Dynamics I
	625	Advanced Dynamics II
	631	Numerical Weather Prediction
	632	Advanced NWP
	652	Atmospheric Boundary Layers and Turbulence
	663	Weather Systems Analysis
	675	Adv. Stratospheric Dynamics
	793	Directed Independent Readings
	795/797	Non-thesis Track (Plan B)
	797/799	Thesis Track (Plan A)

Inquiries and applications are invited from the Dean of the Graduate School, Creighton University, Omaha, Nebraska 68178.

- ATS 516 Computer Methods in Atmospheric Sciences (3) OD**
Intermediate computer techniques currently used in atmospheric science. Emphasis on graphic methods, fundamental techniques of numerical prediction, parallel processing, and artificial intelligence. Applications of these methods to short-term forecasting. P: ATS 315.
- ATS 531 Operational Prediction Models (3) OD (Last offered I, 1994)**
Examination of the use of forecast models from the National Meteorological Center (LFM, Spectral, NGM). Additional models from other sources will also be examined (UKMET, ECMWF, USAF, and USN). Study of model domain, resolution and formation with respect to physical processes. Model performance is described and scrutinized (with respect to systematic errors and to particular synoptic situations). Comparative diagnostics of forecast and observed fields employed to examine model behavior. P: ATS 562 or IC.
- ATS 532 Objective Meteorological Analysis (3) OD (Last offered II, 1989)**
Application of techniques and principles for temporal and spatial computer analysis of atmospheric data based on dynamical concepts, with a focus on the structure, movement, and development of weather systems. Topics include data time series, statistical inference techniques, Fourier analysis, and map projections and grid systems used in meteorology. P: ATS 571 and computer programming.
- ATS 541 Atmospheric Diffusion, Air Pollution, and Environmental Impact Analysis (3) OD (Same as NSC 541)**
Survey of the theoretical and practical aspects of diffusion, dispersion, and turbulent transport of pollutants in an atmospheric boundary layer. Includes observational and instrumentation techniques; plume models; regional pollution transport; and diffusion from point, line and area sources. Chemical and physical transformations of the pollutants, precipitation scavenging, and dry deposition are studied. Reviews Federal environmental laws, air quality standards, environmental impact assessments, ethics, and guidelines for writing environmental impact statements. P: ATS 113 or equiv.
- ATS 542 Radar Meteorology (3) I**
The theoretical and practical aspects of weather radar. Stress placed on the capabilities and limitations of severe storm investigation. P: MTH 245; PHY 212; or IC.
- ATS 544 Hydrology (3) I 1994-95 (Same as NSC 544)**
Study of the waters of the earth, especially with relation to the effects of precipitation and evaporation upon the occurrence and character of water in streams, lakes, and on or below the land surface. In terms of hydrologic cycle, the scope of this course may be defined as that portion of the cycle from precipitation to reevaporation or return of the water to the seas. P: ATS 113 or 231.
- ATS 545 Mesoscale Analysis (3) II**
Examination of the theory of convection as related to models of squall lines and thunderstorms and the application of this theory to the forecasting and analysis of sub-synoptic scale systems. P: ATS 562 & 571.

- ATS 548 Introduction to Solar-Terrestrial Environment** (3) II AY (Last offered, S 1998)
 Course designed to acquaint the student with the basic phenomenology associated with solar processes and activity, and the impact of these processes upon the earth and its atmosphere. Designed to familiarize the student with the concepts of upper atmospheric energetic processes and their influences upon everyday activities. P: MTH 246 & PHY 212.
- ATS 552 Boundary Layer Meteorology** (3) OD (Last offered I, 1998)
 Structure of the boundary layer, surface energy budget, vertical profiles of temperature, humidity and wind, turbulence, Monin-Obukhov theory. Determination of surface heat and moisture fluxes. Some discussion of applications to diffusion and dispersion of substances in the atmosphere. P: ATS 572 or equiv.
- ATS 553 Tropical Meteorology** (3) S
 Characteristics of the tropical atmosphere including convection, boundary layer processes, local and diurnal weather phenomena, mesoscale tropical systems, tropical storm structure, and energetics. This course relies heavily on satellite interpretation of tropical cloud systems. P: ATS 113.
- ATS 555 Meteorological Remote Sensing** (3) II (Last offered II, 1986)
 Examines the relationship between clouds and other atmospheric features as revealed by weather satellites and applies this information to analysis and forecasting of weather systems. Seasonal satellite film loops are used to identify the evolution of circulation systems. Includes a brief introduction to aerial photography and landscape photography. P: ATS 113 or IC.
- ATS 556 Introduction to Physical Oceanography** (3) OD (Same as NSC 556) (Last offered II, 1986)
 Geomorphology of the ocean bottom; properties of sea water, salinity and temperature distributions; major ocean currents and circulations; equations of motion, horizontal wind-driven currents; thermohaline circulations; wind waves and swell.
- ATS 561 Synoptic Meteorology I** (3) I
 Examination of weather code, plotting and map analysis. Includes a review of cyclone and frontal theory using case studies to develop diagnostic and forecasting techniques. Practical applications of air mass and frontal analysis are related to weather forecasting. P: ATS 113 or IC.
- ATS 562 Synoptic Meteorology II** (3) II
 Detailed examination and use of fax charts, PC McIDAS displays, and other tools employed in analysis and forecasting. Review of methods in short-term, medium and long-range forecasting. P: ATS 561 or IC.
- ATS 564 Statistical Applications in the Atmospheric Sciences** (3) OD (Last offered II, 1997)
 Study of the statistical distributions of scalars and vectors, sampling theory, regression, correlation, and time series. Applications to statistical forecasting and forecast verification. P: MTH 245.
- ATS 565 Atmospheric Circulation Systems** (3) OD (Last offered II, 1995)
 Examination of the general circulation of the atmosphere. Emphasis on seasonal variation in both hemispheres. Exploration of formation of anomalous circulation types with respect to anomalous boundary layer conditions. Detailed discussion of tropical-mid latitude interactions. P: ATS 562 or IC.
- ATS 566 Climate Theory** (3) OD
 Theories of global climate and variability. Examination of climate models, including internal and external parameters and feedback mechanisms. P: ATS 113, 561.
- ATS 571 Dynamic Meteorology I** (3) I
 Equations of motion and thermodynamics will be vigorously derived and applied to the atmosphere. Topics include thermodynamics of dry and moist air, hydrostatic and hypsometric approximations, geostrophic and gradient wind balance, mass continuity, and vorticity. P: PHY 213; MTH 246.

- ATS 572 Dynamic Meteorology II (3) II**
 Concepts presented in ATS 571 will be further developed and applied to the following topics: barotropic and baroclinic instability, atmospheric oscillations, quasi-geostrophic theory, and simple numerical modeling. P: ATS 571.
- ATS 573 Cloud Physics and Dynamics (3) OD (Last offered II, 1988)**
 Thermodynamic processes which control the development and growth of clouds. Relationship between atmospheric properties and cloud structure. Distribution of condensation nuclei, water droplet spectra. Initiation and growth of cloud hydrometers. Structure of severe storms, radiative effects of clouds. P: ATS 571.
- ATS 574 Stratospheric Dynamics (3) I, AY (Last offered I, 1996)**
 Study of the principles governing atmospheric motions in the stratosphere. Includes a brief review of chemical processes, radiative effects, and the resulting thermal structures that govern the mean stratospheric circulation; forcing mechanisms and conditions for wave generation in the stratosphere; discussions of sudden warmings, quasi-biennial and semiannual oscillations, and tropical wave phenomena in the stratosphere. P: ATS 571.
- ATS 575 Environmental Measurements Practicum (3) (Same as EVS 575)**
 This course is designed to provide the students with instruction on the principles and practices associated with environmental measurements of the atmosphere, soil and hydrologic courses. Heavy emphasis will be placed on the theory of sampling ambient and pollutant sources, instruments and measurement techniques, and the consequences of the pollutant. The course will include several exercises as well as field trips to local sites of interest to demonstrate the practical and operational aspects of environmental measurement and monitoring programs. P: ATS/EVS 113, MTH 245 and PHY 212 or IC.
- ATS 615 Radar and Severe Storms (3) II, AY**
 Examination of the fundamentals of weather radars (coherent and noncoherent) and their application to detecting severe storms. Topics include properties of electromagnetic waves; radar detection of spherical particles; use of radar for quantitative measurement of precipitation; radar beam characteristics; the use of radar in mesometeorology; the study of severe storms; Doppler weather radar; theory and recent developments applied to severe storm detection and warning. P: ATS 545 or IC.
- ATS 624 Advanced Dynamics I (3) OD**
 Detailed examination of the fundamental physical processes occurring in the atmosphere through the use of thermodynamic and hydrodynamic equations. Subjects treated include geophysical and fluid mechanics, geostrophic adjustment, nongeostrophic baroclinic instability, energetics, and equatorial general circulation. P: ATS 572 or equiv.
- ATS 625 Advanced Dynamic Meteorology II (3) OD**
 Continuation of ATS 624. P: ATS 624.
- ATS 626 General Circulation (3) OD (Last offered II, 1994)**
 The course will apply the fundamental principles of dynamic meteorology and energetics of the atmosphere to explain the major features of the observed general circulation. Explores tropical mid-latitude interactions and anomalous circulation types. P: ATS 571 or equiv.
- ATS 631 Numerical Weather Prediction (3) I 1994-95**
 Descriptive and mathematical foundations for numerical weather prediction. History of numerical weather prediction, analysis and initialization methods, the governing equations and analytic solutions to simplified forms of these equations, finite differentiating techniques and problems in numerical weather prediction. P: ATS 572.
- ATS 632 Advanced Numerical Weather Analysis and Prediction (3) OD**
 Theory of analysis techniques such as spectral analysis and optimal interpolation; conventional gridpoint, spectral, and fine-element models; map projections; the principle of statistical correction to model forecasts and stochastic-dynamic prediction. Practical experience in numerical forecasting is obtained through a project in which a numerical model is developed and numerical methods are applied. P: ATS 631 or equivalent.

- ATS 643 Radiation Through the Atmosphere** (3) OD (Last offered II, 1994)
Introduction to the physical processes of radiation and the theory of radiative transfer through the atmosphere, including definitions, basic radiation laws, absorption, emission, and scattering processes; the radiative transfer equation; and simple solutions. Applied to visible, infrared and microwave radiation, with special emphasis on providing the background necessary for understanding theory and techniques of remote sensing. P: Two semester of calculus.
- ATS 644 Remote Sensing Theory** (3) OD (Last offered II, 1989)
Provides theoretical background for further work in remote sensing of the earth and atmosphere. Topics include electromagnetic theory; Maxwell's equations; the absorptive and emissive properties of the earth-atmosphere system; the scattering properties of the atmosphere, including Mie scattering, calculations of forward radiative transfer and inversion of radiation measurements. P: Two semesters of calculus.
- ATS 646 Current Topics in Remote Sensing** (3) OD
Advanced course in remote sensing, including the latest work in atmospheric temperature and constituent analysis and in terrestrial and oceanographic sensing.
- ATS 647 Solar-Terrestrial Relationships** (3) OD (Last offered PS, 1998)
Basic features of solar activity, the solar wind, and effects of the sun on the earth beginning with an overview of stellar evolution. Class lectures will trace the processes as solar energy is transported into space and the earth's atmosphere. Includes introductory solar physics, magnetospheric dynamics, and thermospheric and ionospheric processes.
- ATS 652 Atmospheric Boundary Layers and Turbulence** (3) OD (Last offered I, 1998)
The conservation equations of heat, moisture, mass, and momentum for the lowest two kilometers of the earth's atmosphere are expanded into mean and turbulent components and scaled to the boundary layer. Closure approximations and the statistical nature of turbulence are discussed. Observations of turbulent boundary layers are reviewed and compared with theoretical predictions. Similarity models are applied to the surface layer and parametric models are applied to the mixed layer.
- ATS 663 Weather Systems Analysis** (3) II (Last offered II, 1996)
Application of fundamental analysis and diagnostic strategies to weather systems. Topics include meteorological data sources and errors, scalar analysis, cross-section and isentropic analysis, surface and upper air analysis, kinematic analysis, deformation and frontogenesis, quasi-geostrophic and isentropic potential vorticity diagnostics. Case studies of major weather systems are employed to demonstrate various analysis strategies and to synthesize a coherent picture of weather system structure and the processes that create that structure. Emphasis on computer assisted analysis and diagnosis. P: ATS 571 or IC.
- ATS 666 Climate Theory** (3) OD (Last offered S, 1995)
Theories of global climate and climate variability. Climate models (including internal and external parameters) and feedback mechanisms will be developed and examined. P: ATS 561 and 562 or equiv.
- ATS 670 Current Topics in Atmospheric Sciences** (3) I, II, OD
Examination of topics of current interest in the atmospheric sciences. Course may include but not be limited to such areas as aeronomy, weather modification, interactive computer graphics, synoptic-scale forecasting and analysis, meso- and micro-scale meteorology, meteorological instrumentation, military applications of the atmospheric sciences; meteorology of other planets, and aerology and atmospheric physics.
- ATS 674 Aeronomy** (3) II, OD (Last offered I, 1992)
Basic features of the technical disciplines comprising the field of aeronomic studies. Starting with an overview of solar processes and phenomena, class lectures will trace the processes as solar energy is transported into space and into the earth's atmosphere. Includes introductory solar physics, magnetospheric effects, thermospheric and ionospheric processes, and special optical phenomena, e.g., aurora and airglow. Students will be exposed to a wide spectrum of highly specialized technical areas with the intent of directing them into more advanced, specialized, in-depth studies. P: ATS 571.

- ATS 675 Advanced Stratospheric Dynamics** (3) OD (Last offered I, 1993)
 Course designed to acquaint the student with the diverse dynamic processes responsible for forming and maintaining the earth's stratosphere. Topics discussed include the radiative and chemical processes responsible for creating the region, periodic changes observed and their significance, and techniques used to measure and observe phenomena in this region. Depending upon the experience levels of the students enrolled, individual specialized exercises may be added to the usual lectures to increase the student's involvement and understanding.
- ATS 793 Directed Independent Readings** (1-3) I, II, S
 One or more students will follow a series of readings, as specified by a faculty member, on a single topic or a range of associate topics. This allows students to explore topics not offered in the current courses or to pursue more advanced study in an area covered in a previous course. A maximum of three semester hours may be taken. P: IC.
- ATS 795 Directed Independent Study** (1-3) I, II, S
 Advanced study in a specific area of interest to the faculty and students. During the course of their research, students are expected to set up scheduled meetings with their advisers. At the end of his/her study, the student will give an oral presentation which highlights the final study report. P: IC.
- ATS 797 Directed Independent Research** (3) I, II, S
 Each student, supervised by a specific faculty member, pursues in-depth reading and research on a single topic. At the end of the project, the student will make a presentation with the research. A paper of publishable quality and length is to be prepared by the student, to the satisfaction of the research committee. In this manner, the student is introduced to scientific research methods and encouraged in the development of both verbal and written communication skills. P: IC.
- ATS 799 Master's Thesis** (1-3) I, II, S
 Research in connection with the preparation of the Master's thesis. Students must register for this course in any term when engaged in formal preparation of the Master's thesis; however, six credit hours are the maximum applicable toward the degree. P: IC.

BIOCHEMISTRY
See Department of Biomedical Sciences

BIOLOGY (BIO)

The graduate program in Biology was discontinued as of July 1, 1994.



BIOMEDICAL SCIENCES (BMS)

Biochemistry, Bioorganic Chemistry, Cell and Developmental Biology, Molecular Biology, Neurobiology, Physiology and Biomedical Statistics.

Professors Richard F. Murphy (Chair), Agrawal, Anderson, Babin, Bertoni, Fritzsich, Jesteadt, Kimberling, Morley, Ohia, Quinn, Reidelberger, Walsh, and Yee; *Associate Professors* Bergren, Brauer, Bruce, Fishkin, Hallworth, Hulce, Jeffries, Johnson, Knezetic, Lovas, Mackin, D. Nichols, Petzel, and Smith; *Assistant Professors* Deng, Dulka, Hansen, Haynatzki, Kincaid, McGee, Meyer, M. Nichols, Patterson, Pisarri, and Soukup; *Professors Emeriti* Andrews, Badeer, and Creek; *Adjunct Professor* Adrian, Vanderhoof; *Adjunct Associate Professor* Crapon de Caprona.

Program and Objectives

Master of Science (M.S.) and Doctor of Philosophy (Ph.D.)

The Department of Biomedical Sciences offers a program of study culminating in the Ph.D. degree. Completion of this program prepares individuals for research careers in academia, institutes or industry.

The program is flexible and fosters a multi-disciplinary approach using our research, courses and facilities, as required, to cater for the career needs and research interests of individual students, in providing research training in a diverse range of areas of study in:

- Biochemistry
- Bioorganic Chemistry
- Cell and Development Biology
- Neurobiology
- Molecular Biology
- Physiology
- Proteomics

Some examples of the wide variety of research specialties of the faculty are: design and chemical synthesis of analogs of regulatory peptides; the role of peptides in the regulation of gastrointestinal and cardiovascular functions, regulation of bone cell differentiation and function and promotion of cancer; signal transduction in carcinogenesis; the molecular biology of collagen synthesis; the regulation of gene expression; the engineering of allosteric RNA catalysts for regulation of mRNA splicing; the cellular and genetic basis for differentiation of the brain and cardiovascular system; comparative neuroanatomy; respiratory mechanics and control; and environmental physiology. The Department encourages collaborative research interaction with faculty in the Departments of Pharmacology, Medicine and Surgery; the Osteoporosis Research Center, The Boys Town National Research Hospital and the Veteran's Administration Hospital.

The program is geared towards integration of structure and function, from cells to the organismic level. Students are educated mainly through participation in research, so emphasis is given to placing students in their research laboratories in the first semester. Didactic courses will be selected from cores of foundation and advanced courses, as required, to meet the educational needs of individual students and to support the training in their selected areas of research. For example, it is expected the students will take lectures in fundamentals of biochemistry and cell and molecular biology, in either course BMS521 or course BMS604 and Introduction to Biostatistics and its Applications (BMS525), taking into consideration past coursework taken by the student as well as the depth of a particular subject required for the selected area of research. Other foundation courses include: Physiology (BMS601), Human Neuroanatomy (BMS624), and Cytochemistry and Histochemistry (BMS627).

The Advisory Committee will determine which foundation courses are most appropriate and can also determine that any course need not be taken depending on the previous education of the student and the research area chosen. The Advisory Committee will similarly select courses from our core of more specialized or advanced courses, including Proteins: Peptides (BMS720), Advanced Cell Biology (BMS703) and Advanced Molecular Biology (BMS704), The Cardiovascular System (BMS641), Cancer Biology (BMS705), Molecular Genetics (BMS706), Physiology of Smooth Muscle (BMS636), and Advanced Gastrointestinal Physiology (BMS721), so as to best meet the research training objectives for the individual student. Thus, the Committee will play a major role both when preparing the initial Plan of Study and when responding to any further course needs arising during the progress of the student in the program.

Students in the Biomedical Sciences program may also register for didactic courses of the Pharmacology and Medical Microbiology graduate programs, including the receptor pharmacology course (PHR 711).

A compulsory core of research courses includes: Directed Independent Research (BMS795), Seminar (BMS791), and either Master's (BMS799) or Doctoral (BMS899) Dissertation. The Graduate School requires all students to take the Responsible Conduct of Research course (IDC601).

Prerequisites for Admission

1. A bachelor's degree or equivalent, preferably with satisfactory completion of course work in a biological, chemical or physical science.
2. A GPA of 3.0 overall.
3. GRE scores in the 50th percentile for the quantitative and verbal parts of the examination.
4. The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550 in the TOEFL (Test of English as a Foreign Language) examination.

General Requirements

The general requirements of the Graduate School listed under Administration and Policies Governing Graduate Study are met.

The student will select an adviser. The student and his/her adviser will formulate a plan of study which will be presented to an Advisory Committee formed by the student and supervisor. The Advisory Committee will assist the student during the entire program.

Courses can be selected from the list below or from related subjects, according to the individual needs of the student.

Doctoral students may be given the opportunity to participate in the teaching activities of the Department. Neither the M.S. nor the Ph.D. degree will be conferred upon any student with an overall QPA of less than 3.0.

Comprehensive Examinations

Students are required to pass comprehensive examinations according to the guidelines of the Graduate School.

Thesis/Dissertation

M.S. and Ph.D. candidates must present and defend a thesis or dissertation. The defense of the Ph.D. dissertation is open to the faculty but only the examining committee may participate directly in the examination. Copies of the thesis or dissertation are to be presented to committee members and the Graduate Dean at least 30 days prior to the defense.

- BMS 521 Principles of Biochemistry (4) II**
Fundamental principles of structural biochemistry, enzymology, metabolism and molecular biology. P: CHM 323 & 324 (organic) or equiv.; Sr. or Gr. Stdg. only with IC. This course is offered in spring semesters only.
- BMS 525 Introduction to Biostatistics and Its Applications (3) II 1997-98, AY**
Organizing and summarizing; elementary probability; sampling distributions, confidence intervals; hypothesis testing using parametric and non-parametric methods; sample size and power; regression and correlation; analysis of variance; experimental design principles and analysis. 3R. P: IC
- BMS 540 Nutrition Facts and Fads (2) I**
A nutrition course designed for people with health care interests emphasizing proper nutrition, omnivorous diets, and basic food science concepts. The inadequacies of food faddism and identification of bogus claims and “quackery” will also be considered. P: A Basic BIO course or a BMS course or IC
- BMS 541 Comparative Vertebrate Neuroanatomy (4) OD**
Study of the evolution of the vertebrate central nervous system, including historical and philosophical background, characteristics and trends within major radiations, and unsolved problems. 2R, 4L. P: IC.
- BMS 545 Dental Physiology (5) I**
Lectures in human physiology. 5R. P: Dental Dean’s consent.
- BMS 550 Appetite Control and Body Weight Regulation (2) II**
Study of the physiology of body energy (weight) regulation through the control of food intake and energy expenditure. Study of the pathophysiology and treatment of obesity. P: BMS 404 or equiv. or IC
- BMS 601 Physiology (5) II**
Mammalian and human physiology. 4R. 2D. P: Gr. Stdg.; background in chemistry, biology and physics.
- BMS 602 Human Gross Anatomy (7) I**
Detailed structure of the human body. Dissection of the cadaver combined with conferences, lectures, and assigned readings. 4R, 9L. P: Gr. Stdg. or IC.
- BMS 604 Fundamentals of Cell and Molecular Biology (credit hours to be determined) I**
Study of the functional aspects of cell and molecular biology with an emphasis on eukaryotic cells. P: IC
- BMS 605 Molecular Endocrinology (3) I**
Study of the function of endocrine glands at the organismal, cellular and molecular level. 3C & D. P: BMS 601 or equiv. Or IC.
- BMS 606 Proteins: Structure-Function Relationships (4) II**
Topics covered include primary structure, principles of secondary and tertiary structures, enzyme kinetics, chemical modifications and their effects, protein-protein interactions, protein complementation and prediction of conformation. Presentation and model building by students are integral parts of this course. 4R. P: BMS 521 or 600 or equiv.
- BMS 607 Enzymes (4) IAY**
Classification and properties of enzymes, kinetics, activators and inhibitors. Study of selected enzymes to demonstrate general principles. 3R. P: BMS 521 or 600 or equiv. And BMS 606.
- BMS 608 Peptide Chemistry (4) IAY**
A detailed study of the theoretical and practical aspects of peptide synthesis, isolation, purification and structure. P: IC and BMS 521 or BMS 600 or equiv.
- BMS 611 Advanced Respiratory Physiology (1-3) I, OD**
Studies in selected topics in respiratory physiology. P: BMS 601; IC.

- BMS 612 Readings in Respiratory Physiology (1) I, OD**
Directed readings in respiratory physiology. P: IC.
- BMS 615 Regulation of Gastrointestinal Function (3) I, OD**
Endocrine and neural control of gastrointestinal functions including secretion, motility and absorption with particular emphasis on the role of recently discovered regulatory peptides. P: IC.
- BMS 616 Methods in Gastrointestinal Organ and Cellular Physiology (3) I, II, OD**
Methods in research of gastrointestinal function using acutely isolated cell systems (such as parietal cells, isolated gastric glands, dispersed pancreatic acini and isolated islets) and isolated, vascularly perfused organs. P: IC.
- BMS 617 Muscle Physiology and Biophysics (3) II, OD**
Mechanics, energetics, biochemistry, ultrastructure, and function of striated muscle. Comparative physiology of cardiac and smooth muscle, and of vertebrate and invertebrate contractile systems. 3 C & D. P: BMS 601; IC
- BMS 619 Readings in Renal Physiology (1) OD**
Directed readings in renal physiology. P: IC.
- BMS 620 Methods in Renal Physiology (1) OD**
Practical measurements of fluid and ion fluxes and their regulation. P: IC.
- BMS 621 Teaching Practicum in Gross Anatomy (1-3) I**
Practical experience in teaching human gross anatomy. Students P: IC.
- BMS 624 Human Neuroanatomy (4) II**
Examination of the fundamental structure and function of the human central nervous system. 2.5R, 1.5L. P: Gr. Stdg. Or IC
- BMS 627 Cytochemistry and Histochemistry (2-4) OD**
Theory and applications of basic cytochemical and histochemical techniques. Students will be required to identify a problem involving the application of light or electron microscopic histochemical and cytochemical techniques for its solution. 2-6 D & L. P: IC.
- BMS 629 Anatomical Methods (2) OD**
Exploration of techniques commonly used in research. 2-4 D & L. P: IC
- BMS 630 Hearing (4) OD**
Introduction to auditory science. P: IC.
- BMS 631 Auditory Physiology I: The Periphery (4) OD**
An advanced graduate level course focusing on the anatomy and physiology of the external, middle and inner ears. P: IC.
- BMS 632 Auditory Physiology II: Central Pathways (4) OD**
An advanced graduate level course focusing on the anatomy and physiology of the central auditory system. P: IC.
- BMS 633 Signals and Systems in Auditory Science (2) OD**
A consideration of fundamental technical aspects of tools commonly used in auditory research. P: IC.
- BMS 634 Regulation of Renal Physiology (3) OD**
The regulation of renal function; the control of renal hemodynamics and tubular transport. The roles of extracellular and intracellular messengers. Analysis of the effects of three membrane bound enzyme second messengers systems including adenylate cyclase, phospholipases A2 and C with respect to renal fluid and electrolyte balance. P: IC.
- BMS 635 Protein Sequence Analysis (2) OD**
This course will introduce students to the theory and practice of purification of peptides and proteins, preparation of samples for structural determination, amino acid sequence analysis by automated Edman degradation, amino acid compositional analysis and mass spectrometry. P: IC

- BMS 636 Physiology of Smooth Muscle (3) II 1996-97 AY**
The role of smooth muscle in control of cardiovascular, pulmonary and gastrointestinal function; how the physiology of the smooth muscle cell integrates neural, hormonal, autocooid and local influences at the cellular level. 3R, L and D. IC
- BMS 640 Protein Chemistry (2) OD**
A survey course covering the properties and determination of protein structure, chemical and biochemical analysis, elements of protein function and examples of protein-protein and protein-nucleic acid interactions. P: IC.
- BMS 641 The Cardiovascular System (1-4) I**
A study of the physiology, histology, embryology, pharmacology, and pathophysiology of the cardiovascular system The student may enroll for part or all of the course with the consent of the major advisor. R, L, D, Q. P: IC
- BMS 642 The Respiratory System (1-3) I**
A study of the physiology, histology, embryology, pharmacology, and pathophysiology of the respiratory system. The student may enroll for part or all of the course with the consent of the major advisor. R, L, D, Q. P: IC
- BMS 643 The Renal System (1-3) I**
A study of the physiology, histology, embryology, pharmacology, and pathophysiology of the renal system. The student may enroll for part or all of the course with the consent of the major advisor. R, L, D, Q. P: IC
- BMS 644 The Gastrointestinal System (1-3) II**
A study of the physiology, histology, embryology, pharmacology, and pathophysiology of the gastrointestinal system. The student may enroll for part or all of the course with the consent of the major advisor. R, L, D, Q. P: IC
- BMS 645 The Endocrine System (1-2) II**
A study of the physiology, histology, embryology, pharmacology, and pathophysiology of the endocrine system. The student may enroll for part or all of the course with the consent of the major advisor. R, L, D, Q. P: IC
- BMS 646 The Reproductive System (1-2) II**
A study of the physiology, histology, embryology, pharmacology, and pathophysiology of the reproductive system. The student may enroll for part or all of the course with the consent of the major advisor. R, L, D, Q. P: IC
- BMS 660 Advanced Topics in Appetite Control and Body Weight Regulation (2) II**
CO: BMS 550 and IC
- BMS 703 Advanced Cell Biology (3) II 1998-99, AY**
Detailed consideration of the functional aspects of cell biology with emphasis on eukaryotic cells. Topics include signal transduction, neuronal cell biology, synthesis, transport and processing of secretory proteins, extracellular matrix proteins, cell adhesions, and cytoskeleton. P: IC
- BMS 704 Advanced Molecular Biology (3) II 1997-98, AY**
Detailed consideration of the structure, function and synthesis of DNA, RNA and proteins with emphasis on eukaryotic cells. Topics include DNA structure, transcription, translation, replication, recombinant DNA technology, eukaryotic viruses and control of cellular differentiation in normal and abnormal states such as cancer. P: IC
- BMS 706 Molecular Genetics (2) II 1997-98, AY**
This course will include a review of the basic principles of genetics, a survey of medical and clinical genetics, and approaches to the identification of disease-causing genes. Special emphasis will be placed on methods and strategies for gene identification, linking analysis and experimental design for identifying genes in humans and animal model systems. Issues associated with human genetics testing/screening and gene therapy will also be examined. 2R and D. P: IC

- BMS 707 Population Genetics (3) II 1998-1999 AY**
 Consideration of the fundamentals of classical and modern population genetics. Topics include (but are not limited to) the Hardy-Weinberg Equilibrium, linkage disequilibrium, inbreeding, random genetic drift, mutations, selection, mutation-selection balance, population structure and coalescent theory for DNA sequence analyses. 3R P: Advanced undergraduate course in genetics and basic knowledge of statistics and probability theory or IC.
- BMS 720 Molecular Modeling of Peptides (3) I**
 Fundamental principles of molecular mechanics and molecular dynamics. Introduction to computational techniques used in molecular modeling. Building a molecular model of selected peptides by students using state-of-the-art molecular modeling systems is an integral part of this course. R, L P: IC
- BMS 721 Advanced Gastrointestinal Physiology (1) I**
 Detailed analysis of the physiology of the gastrointestinal tract. This course will meet one hour per week over a three-year period covering six semesters. P: Gr. Stdg.; IC.
- BMS 790 Research Methods (3-5) I, II**
 Methods and techniques used in on-going research projects. 3-5L. P: IC.
- BMS 791 Seminar (2) I, II**
 Formal oral presentations and critical discussions of assigned subjects to familiarize students with the nature and extent of research literature, the analysis of research papers, and the collation and presentation of scientific information. P: DC.
- BMS 792 Journal Club (1) I, II**
 Directed independent study involving readings and presentations of current physiological literature, followed by group discussion involving students and faculty members.
- BMS 794 Cell Physiology (2) I, II, OD**
 Detailed discussions of fundamental principles of cell physiology. Emphasis on the regulation of cellular homeostasis by way of the analysis of extracellular and intracellular signaling pathways. The course will be based on discussions of assigned readings. P: IC
- BMS 795 Directed Independent Study (2) I, II, S**
 Each student, supervised by faculty members, will pursue in-depth reading and discussions on current research topics of interest to faculty and students. The purpose is to provide an environment whereby the student is introduced to scientific research methods and can improve critical thinking and reading skills as well as exchanging scientific information.
- BMS 797 Directed Independent Research (3-6) I, II, S**
 Original investigation under supervision and guidance of individual staff members. Laboratory and conferences. P: IC.
- BMS 799 Master's Dissertation (1-3) I, II, S**
 Review of the literature and research data; writing of the thesis. Students must register for this course in any term when engaged in formal preparation of the Master's thesis; however, six credit hours are the maximum applicable toward the degree. P: IC.
- BMS 899 Doctoral Dissertation (3-6) I, II, S**
 Review of the literature and research data; writing of the dissertation. Students must register for this course in any term when engaged in formal preparation of the doctoral dissertation; however, twenty credit hours are the maximum applicable toward the degree. P: IC.

BIOORGANIC CHEMISTRY
See Department of Biomedical Sciences

BUSINESS ADMINISTRATION (MBA)

Professors Allen, Gleason, Goss, Krogstad (Director of Graduate Business Programs), Murthy, Nath, Pitts, Raval, Tan, and Wingender; *Associate Professors* Corritore, Fitzsimmons, Flinn, Gasper, Hoh, Jorgensen, Lewis, Marble, Moorman, Purcell, Shimerda, Taylor, Wells, and Workman; *Assistant Professors* Adkins, Chen, Curran, Garcia, Knudsen, Kracher, Mallenby, McNary, and Payan.

Program and Objectives

Master of Business Administration (M.B.A.) Program

The Creighton M.B.A. program is designed to educate the business leaders of tomorrow. To develop your leadership potential, the M.B.A. curriculum emphasizes three competencies. First, Creighton M.B.A. students will become conversant and knowledgeable in the functional areas of business and skilled in their application. Second, Creighton M.B.A. students will study leadership and how leaders can best influence others. Finally, Creighton M.B.A. students will take on leadership roles throughout the M.B.A. program, gaining needed practice in the leadership process.

The M.B.A. program at Creighton University is an evening program which educates qualified men and women in the development of knowledge, abilities, and attitudes that will constitute a foundation for their growth as effective and creative leaders in business, government, and institutions. Effective decision-making for the overall organization is stressed rather than advanced study in a single area of concentration.

Prerequisites for Admission

Enrollment in the M.B.A. Program is open to any qualified person who meets the following requirements: a baccalaureate degree from an accredited institute of higher education, regardless of the undergraduate field of study; evidence of high scholastic ability at the undergraduate level; an acceptable score on the Graduate Management Admission Test (GMAT).

Applications for admission to the M.B.A. Program should be sent to the Coordinator of Graduate Business Programs in the College of Business Administration. The application must include the following: completed application form and application fee; a current resume; one official transcript from each college or university attended to be sent directly by the college or university to the Coordinator of Graduate Business Programs; a personal essay; official score report of 450 or above on the Graduate Management Admission Test, and three completed recommendation forms. The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by achieving a minimum score of 550 or 213 on the Computer-Based Test (CBT) in the Test of English as a Foreign Language (TOEFL) examination.

Applicants are responsible for arranging to take the GMAT and TOEFL and for requesting the registrar of each college or university to mail one official transcript to the Coordinator of Graduate Business Programs.

General Requirements

The Master of Business Administration program consists of 33 semester hours of graduate credit beyond the M.B.A. Foundation Courses. Courses in the program are taken as follows:

- I. Ethics Component: MBA 772 Business and Community Relationships **or** MBA 773 Business and Society **and** MBA 777 Practical Ethics for Business Leaders **or** MBA 778 Business, Technology and Ethics (3 hours - to be taken in first 6 hours of study)

II. Core Component (18 hours; 15 hours if any one course is waived with Dean's permission):

MBA 701 Accounting Applications for Managerial Decision Making

MBA 711 Financial Management and Business Strategy

MBA 741 Managerial Economics

MBA 761 Marketing Management

MBA 771 Leadership and Organizational Behavior

ITM 731 Information Systems Management

III. Elective Component: (9 hours; 12 hours if any one core course is waived)

IV. Policy Component: MBA 775 Business Policy and Managerial Action
(3 hours - must be taken in last 6 hours of study)

The M.B.A. program will, therefore, assure sufficient breadth of exposure across all the functional areas of business appropriate for the Master's level. It is also possible to obtain reasonable depth in a given area by taking the electives in the same area such as in electronic commerce or information technology. Thus, it is possible for a student to complete four courses in a given area and still receive the broader view afforded through the other core courses. In certain instances one core course can be waived by the Director of Graduate Business Programs if a student has sufficient academic background in a discipline. When this requirement is waived, the student would then have four electives instead of three. Decisions on waiving core requirements will be made on an individual basis by the Director of Graduate Business Programs in consultation with the student and department chair.

Special Requirements

At least one-half of the foundation courses must be completed before students will be allowed to enroll in their first 700-level course. Additional 700-level courses may be taken as foundation courses are completed. Students should consult with the Coordinator of Graduate Business Programs for further information. Foundation courses can be completed using undergraduate courses or M.B.A. foundation courses. Enrollment in the 500-level M.B.A. foundation courses is limited to students who have been admitted to the M.B.A. Program. Concurrent enrollment in graduate-level courses and foundation courses is permitted provided the necessary prerequisites have been met for the graduate-level courses.

Elective Course Selections (1-3 Sem. Hrs.)

MBA 715 — Investment Value and Theory

MBA 717 — Accounting Seminar

MBA 719 — Finance Seminar

MBA 739 — Tax Theory and Business Decisions

MBA 751 — Economic Fluctuations and Forecasting

MBA 759 — Seminar in Applied Economics

MBA 765 — Marketing Research

MBA 767 — Marketing Dynamics Seminar

MBA 770 — International Business Operations

MBA 774 — Management of Environmental Risk

MBA 779 — Seminar in Management

MBA 795 — Independent Study and Research

Note: M.B.A. students may also take E.C.M. and I.T.M. courses as M.B.A. electives.

M.B.A. Foundation Courses

(Open only to students enrolled in the Master of Business Administration (M.B.A.), Master of Science in Electronic Commerce (E.C.M.) and Master of Science in Information Technology Management (I.T.M.) Programs).

Note: Foundation courses are waived in each subject area for students who have satisfactorily completed equivalent courses prior to admission to the M.B.A. Program. Acceptable undergraduate equivalents are listed with course descriptions.

MBA 501 Fundamentals of Accounting (3)

Foundation course fostering an understanding of accounting and the way it serves in developing useful information about economic organizations. Acceptable undergraduate equivalent: ACC 201.

MBA 504 Legal Environment of Business (2)

Law as one of the dynamics of our society and the impact on managerial action. The origins of law; the development of the English Common Law-American Constitutional System; and the organization, operation, and termination of a business within the framework of this legal system with emphasis on laws affecting business policy. Acceptable undergraduate equivalent: BUS 201.

MBA 511 Business Financial Management (3)

Analysis of the sources and uses of funds available to business concerns, especially corporations; financial analysis, budgeting, and financial planning and control; financial aspects of circulating and fixed asset management. P: MBA 501 or MBA 541. Acceptable undergraduate equivalent: FIN 301.

MBA 524 Strategic Operations Management (2)

This course addresses strategic issues in the process by which firms in manufacturing and service industries convert tangible and intangible inputs into products and services. This course views production and operations from a strategic rather than tactical perspective, with an introduction to issues such as identification of core competencies, business process reengineering, integrated supply chain management, total quality management and customer satisfaction, mass customizing, enterprise wide planning software systems, and the role of operations in new product or service development. Acceptable undergraduate equivalent: MGT 385.

MBA 526 Statistical and Mathematical Applications in Business (3)

Use of descriptive and inferential statistical methods and mathematical tools for the analysis of business and economic data. Topics include probability distributions, confidence intervals, tests of hypothesis, multiple regression and correlation, time series analysis, and index numbers, basic rules of differentiation, simple maximization and minimization techniques and business applications of derivatives. Acceptable undergraduate equivalent: MTH 141 or MTH 245; and BUS 229.

MBA 541 Fundamentals of Economic Analysis (3)

Major micro- and macroeconomic principles and analysis of major economic problems and policies. Acceptable undergraduate equivalent: ECO 203 and ECO 205.

MBA 562 Fundamentals of Marketing (2)

Managerial approach to the study of problems of marketing with emphasis on marketing strategy and development of a marketing mix. P: ECO 203 or MBA 541. Acceptable undergraduate equivalent: MKT 319.

MBA 584 Fundamentals of Management (2)

Introduces topics addressing the theory and methods for managing individuals and groups in business organizations. The course will focus on the four management functions of planning, organizing, coordinating, and controlling and present ideas on how managers develop their employees and motivate employee performance. The course will also include a discussion of the methods used by managers to promote the quality of work life. Acceptable undergraduate equivalent: MGT 301.

M.B.A. 700-Level Courses

(Open only to students enrolled in the Master of Science in Business Administration (M.B.A.), Master of Science in Electronic Commerce (E.C.M.) and Master of Science in Information Technology Management (I.T.M.)

Programs who have completed the necessary Foundation Courses).

ITM 731 Information Systems Management (3)

This course provides an in-depth coverage of the role of information systems in business organizations, emphasizing applications of information systems and the current issues facing their managers and users. Lectures, discussions, presentations, and student project work will seek to foster an understanding of the strategic importance of information systems, their impacts on people and organizations, the many ways they can improve the work practices within firms, and the ways they can improve a firm's products.

MBA 701 Accounting Applications for Managerial Decision Making (3)

This course involves a study of managerial accounting topics that managers need to perform effectively in various types of organizations. A user approach is taken and emphasis is placed on those phases of managerial accounting that are the responsibilities of a business manager. The course includes an introduction to managerial accounting for manufacturing companies. Coverage includes an examination of how costs behave, cost-volume-profit analysis, planning and control systems, budgeting, performance evaluation, activity-based costing, determining relevant costs, and financial statement analysis. Information technology and various other means are used for problem solving. P: MBA 501 or equiv.

MBA 711 Financial Management and Business Strategy (3)

Analysis and case study of the significant areas of financial planning and control, working capital and fixed asset management, and the identification and acquisition of funds in the money and capital markets; employment of financial techniques as aids in decision-making relative to balancing the liquidity-profitability objectives of a business firm. P: MBA 511 or equiv.

MBA 715 Investment Value and Theory (3)

Study of advanced topics in investments, capital markets, and portfolio theory. Special emphasis on security analysis and valuation, as well as on the theory of efficient markets. P: MBA 511 or equiv.

MBA 717 Accounting Seminar (1 or 3)

Study of advanced topics in accounting. Focus on the analytical and empirical literature in the field of accounting. Course content necessarily changes each semester; therefore, flexibility is provided by the seminar approach. P: MBA 501 or equiv.

MBA 719 Finance Seminar (1 or 3)

Study of advanced topics in business finance. Focus on significant developments and meaningful innovations in domestic and international finance theory and practice. Course content necessarily changes each semester; therefore, flexibility is provided by the seminar approach. P: MBA 511 or equiv.

MBA 739 Tax Theory and Business Decisions (3)

Effects of taxation on business organization, capital structure, policies and operation. Deals with those phases of taxation that are general executive responsibilities. P: MBA 501 or equiv.

MBA 741 Managerial Economics (3)

Analysis of economic information and techniques necessary and useful in business decision-making, including adaptations of economic concepts, principles, and research methods to the requirements of business managers. P: MBA 526 and MBA 541 or equiv.

- MBA 751 Economic Fluctuations and Forecasting (3)**
Analyzing and forecasting fluctuations in national income, employment, and prices; impact of economic changes on business management; application of economic analysis to the problems of interpreting and forecasting of individual firm, industry, and general business conditions. P: MBA 526 and MBA 541 or equiv.
- MBA 759 Seminar in Applied Economics (1 or 3)**
Application of economic theory and analysis to selected problems and issues of local, regional, national, and international concern as these relate to business activity and the making of administrative decisions. P: MBA 541 or equiv.
- MBA 761 Marketing Management (3)**
This course addresses the application of marketing concepts to real world marketing situations. An emphasis is placed on: segmenting markets and identifying profitable market opportunities, developing comprehensive marketing plans and programs for reaching target customers, and the role of leadership and championing behavior within the firm in order to gain organizational commitment for a proposed marketing program. P: MBA 562 or equiv.
- MBA 765 Marketing Research (3)**
Study of the application, evaluation, and efficient use of techniques for the systematic gathering, recording, and analyzing of data about problems relating to the marketing of goods and services. P: MBA 526 and MBA 562 or equiv.
- MBA 767 Marketing Dynamics Seminar (1 or 3)**
Marketing theory is briefly reviewed to provide background for intensive analysis of current and sometimes controversial marketing issues. Course content necessarily changes each semester; therefore, flexibility is provided by the seminar approach. P: MBA 562 or equiv.
- MBA 770 International Business Operations (3)**
Understanding the development of the international business world and the international business environment. Management of business operations across national boundaries and control of the international flow of money, personnel, information, goods, and services.
- MBA 771 Leadership and Organizational Behavior (3)**
This course explores the most important theories and models that explain the influence of leadership on the behaviors and attitudes of individuals, teams, and other groups. The course covers specific leadership skills such as motivating followers, recognizing individual differences, leading groups and teams, exercising power, managing conflict, improving communication, and leading change. P: MBA 584 or equiv.
- MBA 772 Business and Community Relationships (2)**
This course is an application of basic concepts in the business, society relationship to the issues of poverty, joblessness, and economic justice. The course has a service learning format.
- MBA 773 Business and Society (2)**
The world of business is viewed as the arena in which all systems of thought, values, and behavior converge. Structure and function are examined in contexts of operational, directional, and constitutional goals. Students are challenged to order these complexities into a moral frame of reference that will provide both individual and organizational guidance while contributing to social justice.
- MBA 774 Management of Environmental Risk (3)**
This course examines environmental issues relevant to management decision making. Emphasis is on risk analysis related to global/regional and workplace environmental issues. P: ITM 523 or equiv.

- MBA 775 Business Policy and Managerial Action (3)**
This course covers strategic management methods and concepts used by business leaders to enhance the competitive position of their companies. The course will require students to take the role of upper management and use information from all the functional areas of business to develop strategic responses to business problems. P: Last six hours of enrollment in the MBA program.
- MBA 777 Practical Ethics for Business Leaders (1)**
This course explores practical approaches business leaders can take for solving a current ethical issue in business. The specific ethical issues covered can change.
- MBA 778 Business, Technology and Ethics (1)**
This course explores ethical issues that arise from the use of technology in business. The specific ethical issues covered can change.
- MBA 779 Seminar in Management (1-3)**
Exploration and analysis of selected problems and issues in today's business environment. Course content necessarily changes each semester as current and sometimes controversial issues within are discussed. P: MBA 584 or equiv.
- MBA 795 Independent Study and Research (1-3)**
Advanced study and research in subjects not ordinarily covered by regularly scheduled courses. P: Approval of Director of Graduate Business Programs.

CELL AND DEVELOPMENTAL BIOLOGY

See Department of Biomedical Sciences

CHEMISTRY (CHM)

Associate Professor Michels (Chair); Professors Hulce, Mattson; Associate Professors Dobberpuhl, Harris, Kearley, Klein, and Snipp; Assistant Professors Anderson, Estes, Freitag, and Soukup; Instructors de la Cruz and Doyle; Associate Professor Emeritus Zebolsky.

Chemistry is not offered as a graduate major. However, the following Chemistry courses may, with the approval of the major adviser, be included as specified in certain graduate degree programs offered by other departments.

- CHM 501 Inorganic Chemistry I (4) I**
Relation of atomic and molecular structure to chemical and physical properties. Periodicity and descriptive chemistry of inorganic classes and groups. Topics covered include group theory, MO theory, molecular and ionic structures, redox reactions, acid/base theories, and coordination compounds. Laboratory (3 hours weekly); descriptive inorganic chemistry P: CHM 341.
- CHM 502 Inorganic Chemistry II (3) II**
Additional topics in inorganic chemistry. Emphasis on organometallic chemistry of transition metals, molecular binding, synthesis and chemical reactivities of inorganic and organometallic compounds. P: CHM 501.
- CHM 506 Environmental Chemistry and Natural Resources (3) II**
The nature, identification, and quantitative determination of air and water pollutants. Study of natural resources and energy production. Topics covered include the atmosphere, ozone, the troposphere, natural water, acid rain, drinking water, metals, organochlorine compounds and waste management. P: CHM 205.
- CHM 521 Advanced Organic Chemistry: Synthetic Organic Methods (3) (OD)**
A contemporary survey of the analysis, design, and execution of new methods and innovative total syntheses in organic chemistry. Approaches and techniques for critical reading, discussion, and application of the literature of organic chemistry will be introduced and developed. P: CHM 323.

- CHM 523 Bioorganic Chemistry (3) OD**
A survey of current topics at the boundary between organic chemistry and biology, with emphasis on enzyme mechanisms, enzyme inhibition, enzyme models, and natural products. The current chemical literature will serve as source material for study and discussion. P: CHM 323.
- CHM 525 Organic Spectroscopic Analysis (3) OD**
A study of infrared, nuclear magnetic resonance, and ultraviolet spectroscopy and mass spectrometry. Emphasis on both the theoretical basis of each method and the application of the methods to structure determination and other interesting chemical problems. P: CHM 324, CHM 341, or IC.
- CHM 532 Mathematical Concepts in Chemistry (3) I**
Applications utilizing statistics, mathematical operators, vectors, determinants, group theory, series expansions, and basic differential equations in the modeling of chemical systems. P: MTH 246.
- CHM 543 Selected Topics in Physical Chemistry (3) OD**
Selected topics from physical chemistry that match the interests of faculty and students, e.g. macromolecular chemistry, will be discussed. The course will begin with review of related material from the year's course in physical chemistry and end with current research. P: CHM 443.
- CHM 544 Quantum Chemistry (3) OD**
This course is designed to teach the mathematical background of quantum chemistry. Topics covered include operator algebra, quantum mechanical postulates, rigid rotor and harmonic oscillator model systems, applications to chemical systems, and computational chemistry. P: CHM 443.
- CHM 545 Advanced Kinetics (3) OD**
This course is designed to teach the mathematical skills necessary for modeling kinetic systems in chemistry. Topics covered include differential equation techniques, elementary rate laws, composite rate laws, collision theory, transition state theory, reaction dynamics, and potential energy surfaces. P: CHM 443.
- CHM 546 Use of Demonstrations in the Teaching of Chemistry I (2-3) S**
This course concentrates on the use of demonstrations, activities, and other new ideas for use by the teacher in the presentation of chemical principles in the classroom. The theory behind each activity will be thoroughly discussed along with appropriate safety precautions.
- CHM 551 Descriptive Inorganic Chemistry (3) OD**
Descriptive inorganic chemistry and laboratory practicum. A systematic study of the main group elements with an emphasis on chemicals and chemical reactions and processes of importance to society. Includes ten seven-hour sessions consisting of a four-hour lecture/discussion and three-hour laboratory format. Each laboratory session includes 10-15 short experiments or activities. Many of the activities could be utilized at the high school level; however, the purpose of the course is to extend the participant's depth of knowledge of descriptive chemistry by first-hand laboratory experience. Students completing this course are excused from the laboratory portion of CHM 501.
- CHM 555 Microscale Gas Chemistry (1-3) S**
Lecture/Laboratory course designed to present the use of gases to teach or experimentally discover important concepts of the high school and college chemistry curriculum. Environmental issues, reaction stoichiometry, intermolecular forces, catalysis, combustion, and molar mass are a few examples. High school teacher participants will learn to safely and conveniently generate over a dozen gases for classroom and use in the teaching laboratory. Each gas can be used in a variety of experiments or classroom demonstrations. Each experiment will be linked to one or more chemistry concepts with discussion of pedagogy as appropriate.

CHM 575 Nucleic Acid Biochemistry (3) OD

This course presents an in-depth investigation of the current research in nucleic acid biochemistry. The class will focus on the structure and function of nucleic acids, biochemical processes involving nucleic acids, interactions of nucleic acids with proteins and drug molecules, catalytic nucleic acids, and the genome and genetic engineering. The current literature will serve as source material for study and discussion.

CHRISTIAN SPIRITUALITY (CSP)

Administered by University College and Summer Sessions

Professors Hauser (Program Director), Hamm, and Wright; *Associate Professors* Shanahan (Associate Program Director) and Mueller; *Assistant Professor* Calef.

Program and Objectives

Master of Arts (M.A.) with a major in Christian Spirituality

Graduate Certificate in Spiritual Direction and Directed Retreats

Creighton University's graduate program in Christian Spirituality holds as its primary value the integration of these three elements: (1) a thorough knowledge of Christian Spirituality based on Scripture, Church Tradition and Christian heritage, contemporary theology and psychology with an emphasis on Ignatian Spirituality; (2) experiential appropriation of the mysteries of the Christian faith, grounded in human development through reflection, prayer and communal worship; (3) an apostolic orientation directed toward more effective ministry skills especially toward preparation for giving spiritual direction and directed retreats. These are not viewed as successive stages or compartments but as a lived synthesis of mind, heart and mission.

Prerequisites for Admission

Students may enroll either as degree or certificate students. All applicants (degree and certificate) should have a minimum of eighteen (18) credit hours in undergraduate theology, and they should share the spiritual goals of the program.

All applicants must also have three letters of reference concerning their life of faith and prayer sent to the program Director, in addition to the usual credentials for admission to the Graduate School.

The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550 or 213 on the Computer-Based Test (CBT) in the TOEFL (Test of English as a Foreign Language) examination.

Requirements

The degree requires 33 credit hours of course work. The courses are distributed so that one can finish the degree in three summers. Students are encouraged to make a personally directed retreat before or during the first year of the program. Students are required to make a personally directed retreat of more than eight days, under an approved director, during the program. Students may consult University College for information on places offering directed retreats. No thesis is required, but an integrating essay of approximately 25 pages is required at the conclusion of the program.

Required Courses

All degree candidates must take at least one course in each of the following five areas: Foundations (CSP 760 or 761); History (CSP 769 or 770); Prayer (CSP 764, 765 or 766); Discernment (CSP 776); and Catholic Social Teaching or Social Justice (CSP 778 or 779).

Those seeking a graduate certificate in Spiritual Direction and Directed Retreat must take: a course in prayer (CSP 764, 765 or 766); Counseling (CSP 780); the Spiritual Exercises (CSP 773); Discernment (CSP 776); the Pre- and Post-Practicum (781 and 782 are both required). A graduate certificate will be awarded to those who successfully demonstrate the necessary skills in the practica courses and in a satisfactorily supervised practicum. Candidates must be at least 30 years of age, have a two year history of monthly spiritual direction, and have made an extended retreat.

- CSP 660 Dreams and Spiritual Growth (1) S**
This course will explore the significance of dreams in discerning spiritual growth. Some attention will be given to the role of dreams in scripture and Christian tradition. The primary aim of the course is to familiarize participants with the psychology of dreaming and with contemporary methods for discerning the religious meaning of one's dreams: in one's own spiritual growth and development as well as in working with dreams in the context of spiritual direction.
- CSP 661 T'ai Chi Chih: Joy through Movement (1) S**
T'ai Chi Chih's body movement meditation releases stress by relaxing the body and refreshing the mind. The twenty simple movements can be done by all regardless of age and physical condition.
- CSP 662 Chi-Kung Moving Meditation: Embodying Spiritual Attentiveness (1) S**
An introduction for Christians to an ancient system of movements developed by Chinese hermits and contemplatives in order to harness and order the body's energies, thereby providing a positive role for the body in spiritual development. This class is also open to students enrolling as auditors.
- CSP 663 Pastoral Approaches to Psychopathologies (1-2) S**
Overview of the more usual sorts of abnormal behaviors likely to be encountered in counseling sessions conducted by pastors and spiritual directors. Diagnosis, treatment techniques, referrals. Emphasis on cases presented by students and on practical modes of intervention. P: CSP 780 or equiv.
- CSP 664 Spirituality of John (1) S**
Course examines themes from writings of John central for spirituality.
- CSP 665 Spirituality of Diocesan Priesthood (1) S**
(731) Reflection on charisma and spirituality of diocesan priesthood.
- CSP 666 Centering Prayer and the Experience of God (1) S**
Contemplative practices such as Lectio Divina and centering Prayer, which directly cultivates the experience of God's presence and extend the interior silence of prayer into daily life. Additional topics include prayer as relationship, the experience of the Dark Night, and fruits of contemplative prayer in daily activity.
- CSP 667 Masculine Spirituality (1)**
Reflection on issues in Christian spirituality of particular relevance to men.
- CSP 668 Feminine Spirituality (1)**
Reflection on issues in Christian spirituality of particular relevance to women.
- CSP 669 Salesian Spirituality (1-3) S**
Introduction to the Salesian spiritual tradition co-founded in the 17th century by Francis de Sales and Jane Chantal. Seminal texts such as the Introduction to the Devout Life and the lives of the founders will backdrop discussion of central Salesian themes as resources for contemporary living.
- CSP 670 Art and Spirituality (1-3) OD**
With an experiential, hands-on format using watercolor and other art media this course provides an opportunity for right-brain expressions of prayer, spiritual understanding, and experience of God.

- CSP 673 Spiritual Dialogue: East Meets West (1-3) S**
Overview of perspectives and practices from Eastern wisdom that have parallels in Christianity and can deepen prayer experiences, as well as Eastern ideas that challenge Christian beliefs.
- CSP 674 Living with the Dying (1-3) S**
Story-based exploration of the psycho-social and spiritual issues presented by the dying and their families; challenges to the professional caregiver and minister to the dying and grieving; identifying, recognizing and planning helpful interventions regarding Nearing Death Awareness, the symbolic language to the dying, as well as anticipatory and complicated grief issues. Students will assess their own comfort level with death and dying.
- CSP 676 Giving 19th Annotation Retreats (1-2) S**
How to give retreats to people in everyday life according to Annotation 19 of the Spiritual Exercises of St. Ignatius. P: CSP 773; CO: CSP 781.
- CSP 690 Supervision for Spiritual Directors (1) S**
A workshop for spiritual directors who are interested in acquiring or improving the skills necessary to supervise others in this ministry.
- CSP 702 The Gospel of Mark (3) OD**
In-depth study of the earliest gospel, using historical, literary and theological perspectives. Special attention to Mark's use of the Old Testament, his interpretation of Jesus and the Church, and the implications for using this text for Christian life and worship today.
- CSP 707 Spirituality of Luke-Acts (3) S**
Study of the spirituality implicit in Luke's two-volume masterpiece. Focus on God, Jesus, Holy Spirit, discipleship, possessions, community, mission, the Christian reading of the Hebrew Scriptures, and how narrative is a vehicle of theology and spirituality.
- CSP 760 Scriptural Foundation of Christian Spirituality (3) S**
Introduction to Scripture, especially the New Testament, as the foundation to all Christian Spirituality. Faith, prayer, Holy Spirit, Church, centrality of Christ.
- CSP 761 Liturgical Foundation of Christian Spirituality (3) S**
An exploration of the Church's liturgical prayer life as an important basis and foundation for Christian Spirituality.
- CSP 762 Doctrinal Foundation of Christian Spirituality (3) S**
This course examines the foundational doctrines of faith, such as, the Trinity, the divine and human Jesus, salvation by Christ, God's activity in history, the Holy Spirit, and explores their relevance for the Christian spiritual journey, including the relationship to God, to all humanity and to the entire created universe.
- CSP 764 Prayer and Christian Spirituality (3) S**
Using classical and contemporary texts in Christian Spirituality, course studies the theology, methods, stages and dynamics of personal prayer and mysticism.
- CSP 765 Prayer, Intimacy, and True Christian Growth (3) S**
The connection between spiritual and human growth, the necessity of keeping a relationship with Christ, and concrete simple ways of doing it each day.
- CSP 766 Contemplation in the Christian Tradition (3) S**
Course examines approaches to contemplation in classical and contemporary texts. Among authors and texts studied are the following: Pseudo-Dionysius, Cloud of Unknowing, Meister Eckhart, Teresa of Avila, John of the Cross. P: CSP 764 (710) or 765 (711) or equiv.
- CSP 767 Spanish Mysticism (3)**
Study of Ignatius of Loyola, Teresa of Avila and John of the Cross, discussing their spirituality, teachings on prayer, and understanding of human life as a pilgrimage with Jesus, ending only when total union with God is reached. P: CSP/THL 764 or 765 or equivalent.

- CSP 769 The History of Christian Spirituality (3) S**
Development from post-apostolic age to the present. Some of the classics of Christian Spirituality.
- CSP 770 Called to Holiness: The Christian Vocation (3) S**
Saints, ways to sanctity, past and present. The Communion of Saints. NOTE: This course fulfills the requirement for a course in the History of Spirituality.
- CSP 773 The Theology of the Spiritual Exercises of St. Ignatius (3) S**
Theology, interpretations, commentators, structure, with practical applications. Students will draw greater benefit from this course if they have a prior experience of the Spiritual Exercises either in an individually directed silent retreat or an extended retreat in daily life.
- CSP 776 Discernment of Spirits: Theory and Practice (3) S**
Study of the tradition of discernment in the Church with special emphasis on the rules for discernment of spirits in the Spiritual Exercises and the application of these to Christian life and practice.
- CSP 778 Biblical Roots for Peace and Justice Ministry (3) S**
How to use Scripture responsibly in approaching the social and planetary issues of the third millennium. Sample topics: creation and ecology, violence and nonviolence, hunger and stewardship, conscience and civil authority, option for the poor. Opportunity for special issue study.
- CSP 779 Spirituality and Social Concerns (3) S**
Reflections on the practice of spiritual direction, retreat leadership, and other pastoral ministries in light of themes of justice, peace and solidarity in scripture, Christian history, Catholic social teaching, and human experience. Investigation of how the reality of social injustice affects the private and public dimensions of the spiritual life. Emphasis on personal appropriation and leadership development so that students may integrate knowledge that gain into the ministries.
- CSP 780 Introduction to Personal Counseling (3) S**
Theory and practice of the dynamics of personal counseling. Analysis of the likenesses and differences between spiritual direction, spiritual counseling, pastoral counseling, and counseling. Helping methods based on Scripture and personality sciences. Practical acquisition of facilitating behaviors of understanding and listening.
- CSP 781 Pre-Practicum in Spiritual Direction and Directed Retreats (3) S**
Preparation for work in spiritual direction and in giving directed retreats. Students must be receiving spiritual direction themselves for at least two years and also have made at least one eight-day directed retreat. P: CSP courses including CSP 773; CSP 780 or equiv.; and prior consent of Coordinator of Practica; P or CO: CSP 776.
- CSP 782 Post-Practicum in Spiritual Direction and Directed Retreats (3-4)**
Follows a year of receiving supervision in offering spiritual direction and giving directed retreats. A deepening of knowledge and skills needed to offer spiritual direction and directed retreats. P: CSP 781 and consent of Coordinator of Practica.
- CSP 783 Spiritual Direction Within the Family System (3) S**
Course focuses on the spiritual aspects of who we are in light of the family we come from. Overview of how one integrates spirituality into one's family life. Topics include: The Implications of Family Stories; A Framework for Working With Family of Origin in Spiritual Direction; Family Loss From Resistance, Death, Anger.
- CSP 784 The Twelve Steps and the Spiritual Exercises of St. Ignatius (3) S**
Course examines the Twelve Steps of Alcoholics Anonymous against the backdrops of the Spiritual Exercises. First half of class is an experience of meeting on one of the steps; second half is reflection on the step in light of the Spiritual Exercises.

- CSP 785 Psychological Dynamics of Spiritual Growth (3) S (OD)**
This course seeks to develop a comprehensive overview of contemporary authors who have developed perspectives on the interface between psychology and spirituality. Such authors will include: Merton, Nouwen, Rupp, and vanKaam.
- CSP 786 Family Spirituality (3) OD**
Designed for both those who are families and those who minister to families. Key questions: What are the elements of a spirituality derived from within the experience of family? What is the relationship between such a spirituality and the classic traditions of Christian spirituality? How do the family (“the domestic church”) and the wider church community serve, enrich and enable each other?
- CSP 787 Feminist/Womanist Theologies for Spirituality (3) S**
A survey of recent feminist theory and its implications for selected topics in Christian theology and spirituality. The focus of theological exploration will be concepts of God; the human person, sin and salvation; and Christology.
- CSP 789 Spirituality for Americans: Thomas Merton’s Contemplative Vision (3) OD**
The relevance of Merton for contemporary American spirituality. Merton in context of the American experience: his life, writing and thought as guidelines for living the Gospel today. Special attention to themes of True Self, Contemplation and Non-violence.
- CSP 790 Spiritual Formation (3) S (OD)**
The nature and dynamics of spiritual formation, emphasizing personal developmental aspects of spiritual growth. Practical aspects of the spiritual life: spiritual identity, spiritual consciousness, holistic spirituality. Theoretical perspective on formative relations in structured situations: religious formation, seminary formation, spiritual formation in parishes. Formation issues: spiritual growth through stages of the life cycle, sexuality and chastity, conflict and community, suffering and death, work and ministry.
- CSP 791 Spirituality and Sexuality (1-3) S (OD)**
As body-persons, all men and women are called to integrate the various dimensions of our human existence within a thought out/lived out perspective, i.e., a spirituality. For various historical, cultural, and religious reasons incorporating our sexuality can be challenging, even problematic. Through lecture, guided reading/reflection, class discussion, and writing, students will be encouraged to develop their personally meaningful spirituality of sexuality.
- CSP 793 Directed Independent Readings (Credit by Arrangement) S (OD)**
To be arranged. P: DC. written instructor consent prior to preregistration.
- CSP 795 Directed Independent Study (Credit by Arrangement) S (OD)**
To be arranged. P: DC. written instructor consent prior to preregistration.
- CSP 797 Directed Independent Research (Credit by Arrangement) S (OD)**
To be arranged.

CLASSICAL AND NEAR EASTERN STUDIES (CNE)

Professor Greenspoon (Chair); Associate Professors Carlson, Simkins (secondary appointment), Stephens (secondary appointment), and Thomas; Assistant Professors Bucher, Habash; Adjunct Associate Professor McGloin.

Greek and Latin are not offered as graduate majors. However, the following courses may, with the approval of the major adviser, be included as specified in certain graduate degree programs offered by various other departments.

Prerequisites for Graduate Study with Greek or Latin as a minor in Plan B Programs

An undergraduate minor or equivalent in Greek or Latin.

- CNE 520 The Dead Sea Scrolls** (3) OD (Same as THL 520)
Introduction to the Dead Sea Scrolls and various theories about their origin. Exploration of the light they shed on the textual history of the Hebrew Bible, developments in ancient Judaism, and the early history of Christianity.
- CNE 524 History of Ancient Israel** (3) OD (Same as HIS/THL 524)
An examination and reconstruction of the history of ancient Israel from biblical and other ancient New Eastern literary texts, and from archaeological and epigraphic materials.
- CNE 525 Archaeological Field Work and Analysis** (3) S (Same as ANT/THL 525)
The student learns the principles of stratigraphic archaeology (or underwater archaeology) by participating in an excavation for a minimum of four weeks. The student will learn stratigraphic theory and excavation strategy, basic archaeological techniques, and the basic analysis of archaeological materials recovered from the site. (Underwater archaeologists will learn basic underwater techniques in place of some terrestrial methods.) CO: CNE 526
- CNE 526 Archaeology of Roman Palestine** (3) S (Same as ANT/THL 526)
This is a study of ancient Palestine from the rise of the Herodian dynasty in the first century B.C.E. to the aftermath of the Muslim conquest in the seventh century C.E. The material of the course is the physical remains of archaeological sites throughout modern Israel, along with movable cultural remains that issued from these sites. The major focus of the course will be the interaction between Classical Mediterranean civilization on the one hand, and the Jews and other Middle Eastern peoples on the other, in the age that yielded Rabbinic Judaism, Christianity and Islam. CO: CNE 525.
- CNE 529 Translations of the Bible** (3) OD (Same as THL 529)
Various ancient translations of the Bible and their significance.

GREEK (GRK)

- GRK 501 Greek Orators** (3) OD
Selected speeches of various orators; the historical background; the development of Attic prose.
- GRK 502 Greek Historians** (3) I, AY
Selections from Greek historians and a study of their historical methods.
- GRK 523 Plato: Dialogues** (3) I, AY
Readings from the Apology, Crito, Phaedo. Development of the dialogue as a literary form.
- GRK 525 Aristotle** (3) OD
Reading of selections from the moral, political, and literary treatises of Aristotle; problems in Aristotelian scholarship.
- GRK 527 The Greek Fathers** (3) OD
Extensive readings from the Apostolic Fathers including selections from St. John Chrysostom.



- GRK 528 The Septuagint** (3) OD (Same as THL 528)
Readings from the Greek Old Testament, commonly known as the Septuagint (LXX); study of its cultural and religious background.
- GRK 531 Greek Lyric Poetry** (3) II
Selections from Greek lyric poetry, including Sappho, Solon, Simonides, Pindar, and Bakchylides; study of lyric dialects and meters.
- GRK 542 Greek Tragedy** (3) I, AY
Selections from the Greek tragedians.
- GRK 544 Greek Comedy** (3) II, AY
Reading of selected comedies; the origins and characteristics of Greek Old and New Comedy.
- GRK 552 The Iliad of Homer** (3) II, AY
Reading and interpretation of selected passages from the Iliad of Homer; study of the Homeric dialect, development of Greek epic, and historical and poetic aspects.

LATIN (LAT)

- LAT 506 The Latin Fathers** (3) OD
Extensive readings from selected authors, including Augustine, Jerome, and Tertullian.
- LAT 509 Medieval Latin** (3) OD
Selected readings from St. Bernard, St. Anselm, St. Thomas, and St. Bonaventure.
- LAT 510 Silver Latin** (3) OD
Study of one genre from Silver Latin (tragedy, epic, history, biography, epigram), and an introduction to the styles and tastes of the period.
- LAT 514 Roman Historians** (3) II, AY
Selections from Roman historians including Sallust, Livy, Tacitus; a study of their historical methods.
- LAT 518 Roman Philosophy** (3) II, AY
Selected readings from Lucretius' *De rerum natura*. and/or Cicero's philosophic works; study of Roman philosophic interests, especially Epicureanism and Stoicism.
- LAT 520 Roman Satire** (3) OD
Readings of selections from the Satires and Epistles of Horace, the Satires of Persius, and the Satires of Juvenal, with discussions of the origins and development of Roman Satire, and the nature and purposes of satire as a genre of literature.
- LAT 524 Latin Lyric** (3) II
Study of the Odes of Horace and select poems of Catullus.
- LAT 529 Latin Elegy** (3) OD
Study of the elegiac poems of Catullus, Tibullus, Propertius, and Ovid.
- LAT 534 Latin Oratory** (3) II
Selections from Cicero's political and courtroom orations; syntax and method of composition; historical and legal background.
- LAT 538 Latin Epistles and Essays** (3) OD
Selections from the Letters and Essays of Cicero and Seneca with emphasis on their philosophical content. A comparison of Golden Age and Silver Age Latin.
- LAT 544 Roman Comedy** (3) I, AY
Reading of representative plays of Plautus and Terence; theory of the comic; origins, literary characteristics, and influence of Roman comedy.
- LAT 551 Vergil** (3) I, AY
Selections from the Aeneid; study of Vergil's structure, imagery, diction, and meter; reference to the Homeric poems and the contemporary political situation.

CLINICAL ANATOMY (CAN)

Professors Quinn (Director), and Yee; Associate Professors Brauer, Nichols; Assistant Professor Kincaid.

Program and Objectives

Master of Science (M.S.)

The Masters Program in Clinical Anatomy is offered in the Department of Biomedical Sciences and the collaborating departments of Radiology, Surgery, and Pathology. The program curriculum includes human gross anatomy and neuroanatomy, pathology, surgery, radiology, and embryology as related to clinical practice. Students have opportunities to dissect the entire body, to attend autopsies and surgeries, and to participate in case-based discussions of regional anatomy. A portion of the curriculum will also be devoted to lecture techniques, clinical correlations, computer aided instruction, and to the proper and safe preparation and use of preserved and fresh tissue for anatomical demonstration.

Students must begin the program in August with the study of human gross anatomy. The program of study lasts 18 months including the summer session of the first year. Students will graduate with a Master's Degree in Clinical Anatomy in December.

Semester One (Students must begin in August)

- CAN 602 Medical Gross Anatomy
- CAN 626 Clinical Embryology
- CAN 792 Current Topics in Clinical Gross Anatomy

Semester Two

- CAN 630 Human Neuroanatomy
- CAN 792 Current Topics in Clinical Gross Anatomy
- CAN 640 Clinical Rotations (Surgery, Radiology, Pathology)
- CAN 645 Techniques in Clinical Gross Anatomy

Semester Three (Summer)

- CAN 629 Anatomical Techniques and Topics
- CAN 792 Current Topics in Clinical Gross Anatomy
- CAN 640 Clinical Rotations (Surgery, Radiology, Pathology)
- CAN 645 Techniques in Clinical Gross Anatomy

Semester Four

- CAN 621 Teaching Practicum in Human Anatomy*
- CAN 792 Seminar in Clinical Gross Anatomy
- CAN 640 Clinical Rotations (Surgery, Radiology, Pathology)
- CAN 797 Clinical Anatomy Independent (Education/Scholarly) Research

*** Tuition is waived for these hours since the students will be teaching medical students.**

Program Requirements

This course of study primarily is designed for those who wish to continue their professional careers as teachers of clinical anatomy or who will incorporate a significant amount of clinical anatomy teaching into their academic careers. It is also appropriate for those who later intend to pursue further graduate study, to study medicine, or another health care profession. The target group of students also includes those individuals who have had previous graduate training in related fields, but who wish to add practical teaching expertise in clinical anatomy.

Students must have at least a B.S. or B.A. with a strong science component, and have at least a 3.0 grade point average. Students are required to take the Graduate Record

Exam (GRE) or an equivalent professional school entrance exam (e.g., MCAT). Graduates of foreign universities for whom English is not the first language are required to take the TOEFL examination.

- CAN 602 Medical Gross Anatomy (9)** (Same as BMS 602)
Detailed structure of the human body. Dissection of the cadaver combined with conferences, lectures, and assigned readings. 4R, 9L. P: IC.
- CAN 621 Teaching Practicum in Medical Anatomy (4-5)** (Same as BMS 621)
Practical experience in teaching human gross anatomy. The students will demonstrate the prosected bodies which they dissected during the previous summer. Each student will also assist with tutorials, test preparation and grading. Students will be required to prepare for each laboratory session and to actively assist the first-year medical students in the laboratory. Students will be evaluated by the medical students as well as by the course faculty. P: IC.
- CAN 626 Clinical Embryology (2)**
This is a course in human anatomy designed to provide students with insight into the important correlation between human development anatomy and gross anatomy. The course will cover development of all of the systems of the body. The fetus, placentation, birth and delivery also will be dealt with. Major congenital malformations will be discussed in detail. P: IC.
- CAN 629 Anatomical Techniques and Topics (2)** (Same as BMS 629)
The proper preparation, care and preservation, for gross anatomical specimens will be dealt with. Techniques by which individual systems and tissues may be demonstrated and used by the students in this course. These techniques will include latex and corrosion casting, prosection preparation, and long-term preservation of specimens. Students will learn basic embalming techniques and formulation of preservation fluids. Management of body donation programs and interaction with the public will be discussed as will the ethics of human tissue use. The management and safe use of fresh tissue dissection facilities will be discussed. Students will participate in the design of a modern facility for clinical anatomy study. P: IC.
- CAN 630 Human Neuronatomy (4)**
The students in this course will have the opportunity to study the gross and histological anatomy of the central and peripheral nervous systems. The course will include dissection of the brain and spinal cord and study of the circulatory system of the central nervous system. The students also will study basic neurology. P: IC.
- CAN 640 Clinical Rotations and Discussion Group (2)** (Same as BMS 795)
This course provides opportunities to experience day to day applications of gross anatomy in the clinical specialties of surgery, radiology, and pathology. Weekly discussions of the various cases will be held during which the pertinent anatomical correlations will be analyzed as will methods of best conveying to health sciences students the clinical information gained. Students will be expected to write a synopsis of each case and conduct the necessary literature research for a current relevant bibliography. P: IC.
- CAN 645 Educational Techniques in Clinical Anatomy (2)**
The opportunity to design and implement educational techniques appropriate for lecture, small group, and laboratory applications. Each student will prepare and deliver two formal lectures which will be videotaped and constructively critiqued by faculty and peers. Approaches to computer-aided educational techniques will be considered as will specific teaching strategies for traditional lectures and tutorials. P: IC.
- CAN 792 Current Topics in Clinical Gross Anatomy (2)** (Same as BMS 792)
Provides a discussion group which is focused on current literature in clinical anatomy, surgery, pathology and radiology as it directly pertains to the study and clinical application of anatomy in the health sciences. P: IC.
- CAN 797 Directed Independent Research (3-6)** (Same as BMS 797)
Original investigation under supervision and guidance of individual staff members. Laboratory and conferences. P: IC.

COMPUTER SCIENCE (CSC)

Professor Cheng (Chair, Department of Mathematics/Computer Science), *Professor Malik and Mordeson*; *Associate Professors Carlson, Nair, and Wierman*; *Assistant Professor Reed*.

Program and Objectives

Master of Computer Science Program

The graduate program in computer science is designed primarily for students with a bachelor's degree in computer science. The program provides the graduates with a core of common skills and experience in hardware, software, algorithms, languages and data structures while focusing on specialized areas of networking; graphical user interface; information processing and management; and Fuzzy applications. This breadth of general knowledge of the computing field coupled with in-depth substantive knowledge in specialized areas is designed to provide a solid foundation for immediate job success as well as longer term career objectives. A *Master of Computer Science* (M.C.S.) degree is offered with both a thesis and non-thesis option. Thirty (thesis option) or thirty-three (non-thesis) semester hours of graduate courses in computer science are required. The master's program is oriented toward computer applications in industry and business. It is open to candidates engaged in full-time study and also to candidates employed in industry and business who wish to study on a part-time basis. Students will be allowed freedom to choose their own area of concentration and their adviser.

In order to accommodate students with full-time jobs, the courses making up the program are offered during the evening. Courses are offered frequently enough to allow students to graduate in two years.

Admission Requirements

For entry into the program, a bachelor's degree in computer science is ordinarily expected. Applicants from other disciplines, without any formal education or training in computer science, may also be considered for admission. A combined score of 1,000 on the GRE examination will normally be required for acceptance into the program, as will a grade-point average of 3.0. The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550 or 213 on the Computer-Based Test (CBT) in the TOEFL (Test of English as a Foreign Language) examination.

Program Requirements

The program has two options: A & B. Option A combines courses and a thesis. Option B combines both course work and a major report. Both options are available to full-time and part-time students.

Students without prior academic education in computer science will normally be required to complete a qualifying program. Students holding a bachelor's degree in computer science or equivalent will normally be admitted directly into the M.C.S. program.

The exact number of courses in the qualifying program is based on the applicant's academic background and will be determined by the director of the Computer Science Program. However, this program normally includes some or all of the following courses: CSC 221, 222, 509, 514, 527, and 536.

The student may take CSC 515, 535, 539 and 555 for graduate credit toward the M.C.S. program; however, only nine credit hours will be transferred to their programs.

CSC 509 Discrete Structures (3) I (Same as MTH 509)

Logic; Boolean algebra; switching circuits; graphs; groups; semi-groups; finite state machines; coding theory; grammars; algorithms. P: CSC 221; 6 hrs. college MTH.

- CSC 511 Introduction to Computer Systems (3) II**
Computer structure and machine language; assembly language programming; addressing techniques; macros; program segmentation and linkage. P: CSC 222.
- CSC 514 Introduction to Computer Organization (3) II**
Digital logic design; basic addressing modes; instruction formats and interpretation; I/O devices; memory organization; computer arithmetic; microprogrammed control. P: CSC 511.
- CSC 515 Computer Architecture (3) II**
Components of micro, mini, and mainframe architectures; microprogramming; stack computers; parallel computers; pipeline and vector processing; VLSI and systolic architectures; RISC architecture. P: CSC 514.
- CSC 523 Applied Linear Algebra (3) I (Same as MTH 523)**
Matrix algebra; simultaneous linear equations and determinants; numerical solutions of simultaneous linear equations leading to computer applications and linear programming. P: 6 hrs. college MTH.
- CSC 525 Automata, Computability, and Formal Languages (3) II, A (Same as MTH 525)**
Finite state concepts; acceptors; formal grammars; computability; Turing machines. P: CSC 509.
- CSC 527 Data Structures and Algorithm Analysis (3) II**
Graph algorithms, sorting techniques—internal and external; different types of binary trees; B-trees; static and dynamic tables. P: CSC 222, 509.
- CSC 531 C++ & Object Oriented Software Design (3) I, OD**
Procedural abstraction; data abstraction; objects; messages; methods; classes; objected or oriented programming. P: CSC 222.
- CSC 533 Organization of Programming Languages (3) II**
Language definition structure; data types and structures; control structures and data-flow; run-time consideration; interpretive languages; lexical analysis and parsing. P: CSC 527.
- CSC 535 Introduction to Compiler Design (3) I, AY**
Review of program language structures, grammars, translation, loading, execution and storage allocation; compilation of simple structures. Organization of a compiler including compile-time symbol tables, lexical scan, syntax and semantic analyzer, object code generation, error diagnostics; object code optimization techniques; overall design. P: CSC 527.
- CSC 536 Introduction to Systems Programming and Operating Systems (3) I**
Assembler, loader, linker, introduction to operating systems, interrupt processing; memory management; multitasking; input/output control systems. P: CSC 511, 527.
- CSC 538 Networks—LAN & NOS (3) I or II**
Lan, topologies, bus, star, ring, interface cards, network operating system, Novel NetWare; passwords, login scripts, menu, filter, syscon, print services, file services, security. This course was formerly titled "Introduction to Local Area Networking (LAN.)". P: CSC 222 or industry experience.
- CSC 539 Operating Systems Structure and Design (3) II**
Concurrency control; memory management; CPU Scheduling; file structure; security and protection. P: CSC 536.
- CSC 540 Introduction to File Organization and Data Base Systems (3) I**
File processing environment; indexing structures; sequential and random access files; basic concepts of data base management systems; relational data base theory including normalization up to 3NF; query languages. P: CSC 527.
- CSC 541 Database Management Systems Design (3) II, AY**
Review of file organization schemes; data models; database security; protection; concurrency control; database machines. P: CSC 540.

- CSC 542 Relational Database Design (3) I or II**
Relations, relational algebra, SQL, normal forms, Database design, data dictionaries, recovery, concurrency control, two phase commits, application program generator. P: CSC 222 or industry experience.
- CSC 544 Graphical User Interfaces Development (GUI) (3) I or II**
Overview of shrinkwrap/industry standard GUI; experience defacto GUI design, word processors, spreadsheets, graphics packages, GUI design; user-centric design principles, standard GUI components/usage, list boxes/ radio buttons/ checkboxes/ pull-down menus/ icons/ toolbars/ etc., GUI Navigation. P: CSC 222 or industry experience.
- CSC 546 Client/Server Fundamentals (3) I or II**
Philosophy, distributed data, distributed processing, network loadable modules (NLM), application programming interfaces (API). P: CSC 222 or industry experience.
- CSC 548 Object Oriented Design (3) I or II**
Encapsulation, information hiding, object responsibility, member functions, instantiation, class, inheritance, abstraction, ad hoc polymorphism, operator overloading, parametric polymorphism, decomposition, messages, interfaces, coupling, assertions, analysis, problems, solutions, information, entities, events, relationships, notation, reusability, extensibility, portability, maintainability. P: CSC 222 or industry experience.
- CSC 550 Introduction to Artificial Intelligence (3) I, AY**
Problem-solving systems and search methods; representation of knowledge and expert systems; game playing; machine learning and perception; implementing artificial intelligence systems. P: CSC 222, 527.
- CSC 552 Windows Programming (3) I or II**
Programming the Microsoft Windows API; Event driven Programming; GUI Programming; Widgets and Toolboxes; GDI concepts and Procedures. P: CSC 222.
- CSC 555 Computer Graphics (3) I, AY**
Display memory; generation of points, vectors, shapes, etc.; interactive versus passive graphics; graphics display devices and plotters, analogue storage of images; digitizing and digital storage; pattern recognition; data structures and graphics software; the mathematics of 2-D and 3-D transformations; projections; applications in computer-aided design and instructions. P: CSC 527.
- CSC 557 Java Programming (3) I or II**
Java applets; Java applications; AWT event model; menus; images; components; containers and layout managers. P: CSC 222.
- CSC 571 Introduction to Data Communication and Networks (3) I or II**
Teleprocessing; data communication systems; components; communication protocols and interfaces; functional layers; switching and error handling; networking and interfaces; routing and flow control; broadcasting; local/broad area network reliability, security and other issues. P: CSC 514.
- CSC 621 Theory of Computation (3) I 1995-96, AY**
Formal languages, finite automata, Turing machines, computability and decidability of Turing machines, recursive functions and space time complexities of Turing machines. P: CSC 527 or equiv. and IC.
- CSC 623 Numerical Analysis: Linear (3) I, AY (Same as MTH 623)**
Linear systems of equations, Gaussian elimination, error analysis and norms; Jacobi's method; Gauss-Sidel method; overrelaxation; computation of eigenvalues and eigenvector; Hausholder's method.
- CSC 625 Applied Combinatorics (3) II 1995-96, AY**
Combinatorial and graphical techniques for complexity analysis including generating functions; recurrence relations; Polay's theory of counting; planar directed and undirected graphs. NP complete graphs; applications to analysis of algorithms and sorting and searching. P: IC.

- CSC 627 Data Structure and Algorithm Analysis (3) OD**
 Graphs, memory management techniques, algorithm design and analysis, algorithms and data structure integration.
- CSC 633 Neural Networks (3) II OD**
 Introduction to Neurocomputing, learning laws, associative networks, mapping networks, applications.
- CSC 635 Coding Theory (3) I 1995-96, AY (Same as MTH 635)**
 Weight, minimum weight; maximum-likelihood decoding; syndrome decoding; perfect codes; Hamming codes; sphere-packing bound; self-dual codes; Golay codes; B.C.H. code; cyclic codes.
- CSC 637 Fuzzy Neural Networks (3) II 1994-95**
 Intelligent systems; neural networks; learning laws; neural network paradigms; fuzzy associative memories.
- CSC 641 Relational Database Systems (3) II 1994-95, AY**
 Relations and relational schemes; relational operators; functional dependencies; normal forms and multi-valued dependencies; tableaux; chase; null values; partial information. P: CSC 527 or IC.
- CSC 643 Numerical Analysis: Nonlinear (3) OD (Same as MTH 643)**
 Numerical differentiation and integration; solutions of equations and systems of equations; polynomial approximations; error analysis and eigenvectors; applications to digital computers. P: MTH 246.
- CSC 644 Information Retrieval System Design (3) OD**
 Review of information retrieval problems; functional overview of information retrieval; deterministic and probabilistic models; text analysis and automatic indexing; query formulation; system/user interfacing and learning mechanisms; intelligent system design; retrieval evaluation; experimental information retrieval systems; applications to natural language processing. P: CSC 527.
- CSC 650 Advanced Artificial Intelligence (3) II, 1996-97, AY**
 Search techniques, knowledge representation, game playing, natural language processing expert systems, applications. P: CSC 550 or IC.
- CSC 655 Advanced Computer Graphics (3) I, 1995-96**
 Graphics hardware, projective geometry 2D and 3D, interaction, curves, surfaces, solids, color, and the elusive search for reality. The general knowledge of the C language is assumed.
- CSC 683 Fuzzy Mathematics (3) I, 1994-95 (Same as MTH 683)**
 Crisp sets; fuzzy sets; classical logic; fuzzy logic; operations of fuzzy sets; fuzzy relations; fuzzy measures; uncertainty and information; application to management and decision making; computer science; systems science.
- CSC 687 Applications of Fuzzy Set Theory (3) II, 1994-95**
 Applying fuzzy set theory to control problems; pattern recognition; fuzzy logic, expert systems.
- CSC 715 Advanced Computer Architecture (3) II, 1995-96, AY**
 Advances in computer architecture, data flow computers, application oriented, and high-level language oriented architectures; back and front-end machines; distributed computing; systolic machines; study of features of selected computer architectures. P: CSC 515.
- CSC 717 Parallel Processing and Architectures (3) OD**
 Various parallel architectures and their comparative study, models of parallel computation, processor arrays, multi-processors, dataflow computers and systolic array structures, special architectures. P: CSC 515, 527.

- CSC 721 Analysis of Algorithms (3) I, 1994-95, AY**
Theoretical and computational analysis of various algorithms. Topics include sorting, searching; series and polynomial arithmetic; linear and nonlinear recurrences; backtracking; matrix multiplication; abstract machines; boundedness and NP completeness. P: CSC 527.
- CSC 731 Software Engineering (3) II, 1994-95, AY**
Basic concepts and major issues of software engineering; current tools and techniques providing a basis for analyzing, developing, maintaining, and evaluating the system; technical, administrative, and operating issues; privacy, security and legal issues. P: CSC 527.
- CSC 736 Advanced Operating Systems (3) I, 1994-95, AY**
Review of contemporary OS, OS design principles and strategies, examination of communication and synchronization protocols, concurrent processes and process scheduling and their statistical analysis, memory organization and management, protection mechanism and security. P: CSC 536.
- CSC 739 Data Communication and Computer Networks (3) I, 1995-96, AY**
Teleprocessing; data communication systems components—media, hardware and software; networks architectures and topology; communication protocols and interfaces; functional layers; communication media; line utilization, switching, and error handling; network interfaces, routing and flow control; point-to-point, broadcasting, and local networks theory and current practices; reliability and security, encryption practices; reliability and security, encryption.
- CSC 741 Knowledge Based Systems (3) OD**
Knowledge acquisition, representation, abstraction, and management techniques; knowledge storage and retrieval; types of knowledge based (KB) systems, architecture of KB systems. Machine learning, connection machines, robotics, pattern recognition systems and expert systems. Applications in signal processing, medicine, spectroscopy, chemometrics.
- CSC 743 Deductive Database Systems (3) OD**
Syntax and semantics of deductive database; structure and representation of logic rules, recursion; queuing processing techniques, naive and semi-naive evaluation; evaluation methods; magic set, AD, IMS, and wave front methods; parallel processing techniques.
- CSC 751 Digital Image Processing (3) I, 1995-96, AY**
Conversion of visual to digital images; binarization, thresholding, sampling; smoothing and sharpening; Fourier optics; orthogonal transformation; image representation, feature extraction and selection; shape descriptors; image encoding and restoration.
- CSC 753 Pattern Recognition (3) I, 1995-96 AY**
Introduction to statistical decision theory and matrix algebra; pattern and pattern characteristics; construction of pattern recognition systems, data acquisition, preprocessing; transformations; feature selection, extraction and analysis; learning and decision rules; clustering; discriminant analysis; applications to character recognition; signal processing, speech, remote sensing, etc.
- CSC 756 Computer Vision (3) OD**
Introduction to digital images, gradient operators, straight line detection, Hough transform, Hough transform based line detection algorithms, algorithms for detection of circles, ellipses. Generalized Hough transform, detection of arbitrary shapes. This noncurrent course is included here for record purposes only.
- CSC 790 Major Report (3) OD**
Research and preparation of master's major report on a specific topic of current interest with the guidance of a graduate faculty member in computer science. This noncurrent course is included here for record purposes only.

- CSC 793 Directed Independent Readings** (3) OD
CSC 795 Directed Independent Study (3) OD
CSC 798 Major Report (3) OD
CSC 799 Master's Thesis (6) OD

ECONOMICS (ECO)

Professors Allen, Goss, and Murthy; Associate Professor Fitzsimmons; Assistant Professor Knudsen; Professor Emeritus Nitsch; Associate Professor Emeritus Funk.

Economics is not offered as a graduate major. However, the following Economics courses may, with the approval of the major adviser, be included as specified in certain graduate degree programs offered by various other departments.

- ECO 508 Development of Political Economy** (3) I or II (Same as INR 508)
 Evolution of economic doctrines and analysis from biblical and Graeco-Roman origins to modern times, with an emphasis on "orthodox" or mainstream "schools" and developments and critical movements and departures therefrom. P: ECO 205 or equivalent for Graduate students.
- ECO 518 Comparative Economic Systems** (3) I or II (Same as INR 518)
 Analysis of modern variants of capitalism and socialism in light of the basic problems and principles applicable to all social economies. Fulfills the College of Business Administration requirement for an international course. P: ECO 205 or equivalent for Graduate students.
- ECO 528 International Economic Development** (3) I or II (Same as INR 528)
 Contemporary theories of economic development and their relationship to the continuing problems of unemployment, income distribution, population growth, urbanization, and economic growth in the Third World. P: ECO 205 or equivalent for Graduate students.
- ECO 538 International Trade and Finance** (3) I or II (Same as INR 538)
 Basic theory of inter-regional and international trade; analysis of the international economy, including the institutions, procedures and policies of world trade and finance. P: ECO 205 or equivalent for Graduate students.
- ECO 725 Seminar in Comparative Economic Systems** (3) OD (Same as INR 725)
 Critical examination of modern variants of market-type and centrally-planned economies, commencing with a review of the basic problems and principles applicable to all socioeconomic systems, and proceeding with a study of models, cases, and selected aspects of the existing forms of socialism and capitalism. Consideration is given to the interplay of the level of economic development with related cultural, technological, and environmental factors in determining the structural, operational, and performance characteristics of politico-economic systems. Deviationist tendencies within the "isms" and the related "Convergence Hypothesis" are viewed in conclusion. P: ECO 518.
- ECO 779 Seminar in International Economics** (3) OD (Same as INR 779)
 Directed individual research and reports on approved topics in advanced theory, problems, and policies in international trade and finance. P: ECO 538.

EDUCATION (EDU) AND COUNSELOR EDUCATION (COU)

EDUCATION (EDU)

Professor Emeritus O'Connor; Professor Dickel (Director of Counselor Education); Associate Professors Brock, Doyle, Ishii-Jordan (Associate Chair) and Ponc (Chair); Assistant Professors Cook (Director of Secondary Education), Durow (Coordinator of School Administration), Muskin, Olson, Smith, and L. White; Instructors DeMott (Director of M.A.G.I.S.), and Levine.

Program Objectives, Prerequisites for Admission, and Requirements

Four masters' degree programs are offered by the Department of Education. Their objectives, prerequisites for admission, and requirements are described below.

Master of Education (M.Ed.) in Secondary Teaching

These programs are designed for college graduates (with certain undergraduate degrees) who are interested in earning their Nebraska teaching certificate with a master's degree. These programs are accredited/approved by state, regional, and national accrediting agencies, including the National Council for Accreditation of Teacher Education (NCATE), the Nebraska Department of Education, and the Department of Education at Creighton University. Secondary (7-12) teaching endorsements are offered in the following subjects: Art, Computer Science (supplemental), English, Journalism, Language Arts, Mathematics, Languages (French, German, Latin, and Spanish), Sciences (Biology, Chemistry, Natural Sciences, and Physics), Social Sciences (History, Political Science, Psychology, and Sociology), Speech/Drama, and Religious Education.

There are two ways that this 44-credit degree can be pursued.

- *Accelerated M.Ed. in Secondary Teaching Program.* This option is for students seeking to receive a standard master's degree. Courses are offered at a 50% tuition discount. Courses required are: EDU 503, 507, 510, 525, 548, 551, 552, 583, 591, 592, 593, 615, 692; plus one of the following: EDU 660-670; plus 2 electives.

- *Mentoring Academic Gifts In Service (M.A.G.I.S.) Program.* This option seeks to develop a core of highly motivated teachers to serve in underserved Catholic Schools. Each year a new cohort is admitted into the program. Upon acceptance, MAGIS teachers will make a commitment for two years to live in community and pursue professional and spiritual development while serving as full-time teachers in selected Catholic schools. This program is offered at no tuition cost to the participants. Courses required are: EDU 503, 507, 510, 520, 525, 548, 551, 552, 583, 615, 680, 681, 686, 687, 688, 689, 692; plus one of the following: EDU 660-670.

Master of Science (M.S.) with a Major in Elementary School Administration

This program is designed for the individual who desires to prepare for the position of elementary school principal. The program consists of required courses designed to provide both theoretical and practical knowledge of elementary-school administration. The need to acquire decision-making skills is stressed in components of courses designed to improve leadership capabilities.

As a prerequisite for admission to this program, one must possess a teaching certificate; be a successful teacher; and have acceptable scores on the Pre-Professional Skills Test (PPST), or have three or more years of teaching or administration in the same school system (as defined by LB 314).

The following courses constitute the required courses of the program. EDU 600, 609, 610, 615, 620, 622, 624, 625, 628, and 692 as well as COU 642.

A portfolio will be used as the culminating assessment for students in the school administration program. This is to be presented to the School Administration faculty in the final six hours of the thirty-six hour master's degree program.

Anyone with a master's degree from another institution must complete a minimum of twenty-four graduate semester hours in Education at Creighton to qualify for a recommendation for an administrative certificate.

Master of Science (M.S.) with a Major in Secondary School Administration

This program is designed for the individual who desires to prepare for the position of secondary school principal. The program consists of required courses that are designed to provide both theoretical and practical knowledge of secondary school administration. The need to acquire decision-making skills is recognized in various components of the required courses. The program is comprehensive and includes the study of several areas of knowledge — both direct and auxiliary — that are essential when considering the responsibility of the administrative position.

As a prerequisite for admission to this program, one must possess a teaching certificate; be a successful teacher; and have acceptable scores on the Pre-Professional Skills Test (PPST), or have three or more years of teaching or administration in the same school system (as defined by LB 314).

The following courses constitute the required courses of the program: EDU 600, 609, 610, 615, 620, 622, 624, 625, 630, and 692 as well as COU 646.

A portfolio will be used as the culminating assessment for students in the school administration program. This is to be presented to the School Administration faculty in the final six hours of the 36 hour master's degree program.

Anyone with a master's degree from another institution must complete a minimum of twenty-four graduate semester hours in Education at Creighton to qualify for a recommendation for an administrative certificate.

Master of Science (M.S.) with a Major in Counseling

This program is organized on the assumption that an effective counselor must be a personally adequate person who has a cognitive understanding of humankind and counseling theory. In addition to intellectual understanding, the counselor must continually develop proficiencies and competence in specific skills germane to the helping relationship. It is important for the student beginning this program to understand that he or she is expected to further his or her maturity in all three areas — personal growth, cognitive understanding, and technical competence.

Programs are designed to meet the needs, on the Master's level, of those interested in various counseling roles and student personnel services. These programs are designed to develop the competencies demanded of an individual embarking on a career in one of these areas. Such individuals are usually employed by school systems, employment services, colleges, and community agencies. To be employed in a school system, a counselor must be certified by a State Department of Education. In many states, counselor certification demands a teaching certificate and teaching experience. It should also be noted that potential employers frequently impose additional requirements above those needed for certification, e.g., teaching experience within that system.

If one desires to be **certified** to function as a counselor in an elementary or a secondary school, entrance into the program requires twenty-four semester hours of Education and a teaching certificate. The undergraduate program must include at least two of these courses: general psychology, educational psychology, tests and measurements, child psychology, human growth and development. School counselors must have two years of successive full time teaching experience to add a counseling endorsement. Counseling course work can be pursued concurrently with attaining the required teaching experience.

If one does not wish to be certified as a counselor in an elementary or a secondary school and intends to seek employment elsewhere, entrance into the program requires **24** semester hours in the behavioral sciences. Of this number, **12** must be upper-division. It is assumed also that general psychology will have been taken as a prerequisite to the upper-division work. An evaluation of one's undergraduate program will be made to determine how adequate it is for entrance into this program. It must be understood that

the completion of this type of program **will not** qualify one to be a counselor in an elementary or secondary school.

The programs are competence based so that a candidate must demonstrate competency in a number of skills in each course in the counseling core before receiving a satisfactory grade. COU 542, Seminar in Counseling, includes competencies completed in self assessment by means of psychometric instruments and participation in a personal growth group. The student is expected to enroll in COU 680 after the completion of all core coursework and, most appropriately, during the internship experience. Final grades in COU 542 and 680 will be either Satisfactory or Unsatisfactory.

A student may not enroll in internship until the core requirements including a practicum have been completed. The student who does not plan his or her course work to accomplish this will need to return during another semester or summer session to complete the degree requirements. Occasionally, a student may have completed a core course on another campus before transferring to Creighton. Even though the credit is accepted in the transfer, the competencies assigned to that course must be demonstrated prior to being permitted to enroll in internship. The internship requires 450 clock-hours on site at a school or agency during normal business hours. Full-time students can complete this during one semester. Part-time students will need to arrange a flexible schedule with their employer to complete the requirements in one semester. The course requirements demand two or more semesters for students who cannot gain released time from their present employment.

The internship is taken only after all core courses are completed satisfactorily. The internship cannot be completed before the final semester of attendance unless the student can present sufficient cause for modification.

The following courses constitute the required core of the program: COU 615, COU 540, 542, 544, 610, 612, 620, 630, 680, and internship. In addition, students wishing to be elementary school guidance counselors are required to take COU 642 as a part of their core. Students wishing to be secondary school guidance counselors are required to take COU 640 and 646 as part of their core. Students wishing to be community counselors are required to take COU 640 as part of their core, and students pursuing specialization in college counseling and student development are required to take COU 640 and 650 as part of their core. It is expected that during the first semester or summer of attendance that the student will enroll in COU 540 and 542. For each area of specialization, elective hours will be necessary to achieve the 39 hours required for degree completion. Students should consult with the director of the counselor education program for recommendations of acceptable electives.

NOTE: The Graduate Program in Counseling is in a major revision process. This revision will lead to application for accreditation by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Current program information may be obtained from the Director of the Counseling Program.

Graduate Endorsement in English as a Second Language

The Education Department offers a 15-credit supplemental teaching endorsement in English as a Second Language. This program requires that a student have a teaching certificate, evidence of competency in a foreign language equivalent to two semesters of post-secondary foreign language work or two years of high school foreign language, and will take the following courses: EDU 541, 542, 542, EDU/ANT 319, and ENG 520 or EDU/ENG 522.

Graduate Endorsement in Gifted Education

The Education Department offers an 18-hour endorsement program in gifted education. This program requires that a student have a teaching certificate and one year of teaching experience prior to the completion of the program. For the endorsement, the student must take EDU 632, EDU 633, EDU 634, EDU 635, EDU 636, and EDU 640.

The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550 or 213 on the Computer-Based Test (CBT) in the TOEFL (Test of English as a Foreign Language) examination.

- EDU 500 Remedial Reading (3) II , S**
Focus of the course is on meeting the variety of individual educational needs that confront a teacher of reading. Techniques, methods, materials, and organizational systems that can be used within the framework of daily instruction. P: EDU 311.
- EDU 501 Psychology of Exceptional Children (3) I, PS**
A multidisciplinary and life span approach to the study of persons with differences. P: Jr. stdg.
- EDU 503 Foundations of Education (3) S**
This course serves as an introduction to American education. Both lecture and laboratory oriented, the course provides an approach to teacher education that includes an opportunity for students to acquire a basic understanding of the history and philosophy of education and to become involved in interacting and role playing in problem-solving situations. Emphasis on cultural diversity and human relations characterizes this course. P: Dept. and program approval.
- EDU 505 Methods and Strategies for Working With Families and Support Personnel for Exceptional Children and Youth (3) OD (Same as SWK 505)**
Course designed to address the needs of families of exceptional children and youth and train the support personnel who work with exceptional children. P: EDU 501; Jr. stdg.
- EDU 506 Workshop in Environmental Education (1) S (Same as NSC 506)**
Advanced Project WILD. Special topics in the teaching of environmental education for those who have participated in a Project WILD or Aquatic WILD workshop. May be repeated to a limit of three semester hours. An extra fee will be assessed.
- EDU 507 Psychology of Learning (3) S**
This course deals with the application of psychological principles that promote the learning of individuals and groups. Emphasis is placed on motivation, theories of learning, transfer of training, and the development and measurement of intelligence. Methods of improving achievement and measurement of knowledge are addressed. P: Dept. and program approval.
- EDU 510 Growth and Development of Children and Adolescents (3) S**
An overview of maturation in childhood and adolescence focusing on individual differences and similarities in biological, social, cognitive, and affective development from the perspectives of psychology, sociology, and anthropology. The emphasis of the course is on processes that have application for teachers and parents. P: Dept. and program approval.
- EDU 514 Whole Language: Philosophical Perspective for Reading (3) OD**
Exploration of special methods and materials related to the Whole Language Philosophy in reading education. P: EDU 311 strongly recommended.
- EDU 517 Mental Health Intervention Strategies for Children and Adolescents (3) OD**
A theoretical and applied analysis of emotional disorders in children and adolescents which focuses on the identification and assessment of psychiatric disorders and intervention strategies.

- EDU 520 Foundations of Catholic Education (3) S**
 Course designed to trace the history and philosophy of Catholic Education, elementary school to university, as it has evolved through the centuries. The focus will be on the concept of “Catholic Identity” of schools as the Magisterium and scholars throughout history have interpreted it. Church documents will serve as the main text for the course. The culmination will be a project whereby students apply theory to educational practice in the Catholic school setting.
- EDU 522 Introduction to Linguistic Studies (3) OD**
 Survey of the history of the English language and an examination of the structure of modern English grammars. P: Dept. Approval (Same as ENG 522).
- EDU 525 Procedures for Including Students with Mild/Moderate Disabilities in the Regular classroom (3) I, II**
 Course designed to acquaint the regular education teacher with the characteristics of students with mild or moderate disabilities. Discussion of diagnostic and remedial techniques for students with disabilities in the regular classroom. Students complete a practicum under supervision of a special education teacher. P: Adm. to Dept.
- EDU 531 Current Trends in Teaching Mathematics K-8 (3) OD**
 Designed to provide information for teachers K-8 on recent trends in the teaching of mathematics with emphasis on new standards by the National Council for Teachers of Mathematics.
- EDU 532 Sharing Christian Values: How To Do It in the Classroom (3) OD**
 The question often confronting teachers in Catholic elementary and secondary school is, “How can we become more effective in transmitting the values of the Gospel and our own school’s philosophy?” Course designed to help teachers clarify their own understanding of faith and Christian values. Consideration given to the question of how teachers of so-called secular subjects can be instrumental in forming the values and faith of students.
- EDU 533 Shakespeare in the Classroom (3) S**
 Four-day intensive study for teachers of English and drama. Exploration of innovative educational strategies and practical application of Shakespearean texts in today’s classroom. Lecture and demonstration, small group and private instruction. Instructors include members of Twelfth Night, the theater company. Participants will develop an individual or group project and compile a source book of activities presented during the workshop. Includes preparation of an in-depth unit of study, appropriate to grade level, incorporating inter-disciplinary and multi-cultural strategies.
- EDU 534 Learning Styles, Self Esteem and Movement (3) S, 1994**
 Course has three major components: learning styles theory and practice, movement activities which enhance brain integration, and the emotional and developmental needs of children as related to their self-esteem.
- EDU 535 Human Relations and Cultural Diversity (3) I, S**
 Course designed to provide teacher educators with human relations skills and to foster insight into effective communication with diverse racial and/or cultural groups. This course meets the human relations requirement of the Nebraska Department of Education. P: DC.
- EDU 536 Human Relations - Attitudes and Skills (1)**
 Course designed for Catholic School teachers to fulfill the objectives of the Nebraska State Certification requirement relative to Human Relations Training. It requires the development of understanding and knowledge of diversity of cultures, effective responses to dehumanizing biases, and instructional strategies to effect the same development in students. P: current state certification as teacher or administrator.
- EDU 537 A Nebraska History Experience for Teachers (3) OD**
 Course designed to assist classroom teachers in understanding the historical and cultural development of Nebraska. Participants read specified literature dealing with this development. The readings deal with the sites to be visited during the field experience. These readings will be completed prior to the tour of Nebraska historical sites. P: Sr. stdg.

- EDU 538 Parks and Public Use Areas as Learning Sites (3) OD**
 Designed to assure appropriate educational and recreational use of local and area outdoor environment facilities by classroom teachers and their students (K-12). Basic understanding of the concepts involved in maximizing the effectiveness of outdoor facilities. Extra fee required. P: IC.
- EDU 539 Nebraska Science Tour for Teachers (3) OD**
 Designed to expose teachers to and assist them in understanding natural sciences in the state of Nebraska. Includes energy, weather, geology, and biology. Readings in specific literature and text material to be completed before and during the tour. Field experience includes a 1,700-mile group tour of the state of Nebraska with participation in instructional programs at predesignated sites including such places as electrical power stations, fish hatcheries, the Niobrara River, the Sandhills, Toadstool Park, and Scottsbluff National Monument.
- EDU 541 Curriculum Design for English as a Second Language (3) I**
 This course is designed to provide students with the knowledge and skills necessary for understanding and designing curricular models for P-12 students who are acquiring English as their new language. Students will learn theories of second language acquisition, English as a Second Language (ESL) legislation and issues, models of curriculum design, and language assessment. P: Dept. approval.
- EDU 542 Methods in English Language Learning (3) II**
 This course is designed to provide students with the knowledge and skills necessary for using appropriate strategies and techniques with P-12 students who are acquiring English as their new language. Students will learn theories of second language acquisition, conduct language assessments, plan and implement lessons using bilingual/bicultural materials, and understand how to work with culturally/linguistically diverse families and interpreters. P: Dept. approval.
- EDU 543 Practicum in English Language Learning (3) I, II**
 This course is the capstone for the teaching endorsement "English as a Second Language". Students will work in a K-12 school setting with students whose native language is not English. This course meets the certification requirements of the Nebraska Department of Education for a supplemental endorsement. P: Dept. approval. P: or Co: EDU 541, 542.
- EDU 548 Teaching Reading in Content Areas in Middle and Secondary Schools (3) I**
 Course designed for junior-high and secondary-school content-area teachers who have had little or no background in the field of teaching reading. Practical concepts, techniques, strategies and activities designed to enable the content-area teacher to develop better a student's reading skills and abilities while utilizing content materials. Offered only in fall semesters. P: Jr. stdg.
- EDU 551 Methods of Instruction for Secondary Teaching (3) I**
 This course introduces students to the general principles of teaching in a secondary school. The course addresses planning for instruction, teaching methods, and assessing student achievement. Students practice their skills outside of class through weekly fieldwork experiences in local schools. P: or Co: EDU 503, 507, 510 or Dept. approval.
- EDU 552 Technology Instruction for Secondary Teaching (1) I**
 A course designed for teacher candidates interested in the use of instructional technology. The course content will relate to the ways in which technology can support and enhance the instructional process in education. P: EDU 503, 507, 510; Co: EDU 660-670 (any of these) or EDU 551.
- EDU 553 Current Topics in Instructional Design (3) OD**
 Principles of applied behavioral analysis and learning theory, development of individualized learning programs and behavior management. P: DC.
- EDU 554 Current Topics in Classroom Effectiveness (3) II**
 Theory and application of structuring and integrating group learning activities. Employing cooperative learning principles to promote positive interdependence and individual accountability. P: DC.

- EDU 555 Teaching Students Responsible Behavior (3) I or II**
 Course designed to give professional educators the theory and skills to teach students how to take responsibility for their own behavior in school. Based on the Work of William Glasser, this course leads participants through a series of learning activities designed to enable them to teach their students the concepts of Control Theory and then to plan and implement a program of Responsibility Training in their classrooms.
- EDU 563 Assessing Organizational Systems (3) AY**
 Workshop evaluating characteristics of organizations (including schools and service organizations). Practical training in assessing the effectiveness of such interventions as curriculum, training and development, and personnel. Special emphasis on planning, conducting, and interpreting surveys; developing questionnaires, interpreting results, and writing final reports.
- EDU 581 Teaching Students How to Think, Level I (3) S**
 A Level I Training Session in the Feuerstein Instrumental Enrichment Program, a classroom curriculum designed to diagnose and correct deficiencies in thinking skills and to help students learn how to learn. P: Sr. stdg.
- EDU 582 Teaching Students How to Think, Level II (3) OD**
 A Level II Training Session in the Feuerstein Instrumental Enrichment Program, a classroom curriculum designed to diagnose and correct deficiencies in thinking skills and to help students learn how to learn. A continuation of EDU 581 at the advanced level. P: EDU 581.
- EDU 583 Management Practices for Classroom Teachers (3) S 1994**
 Creating and/or maintaining a positive learning environment through techniques of observation, description, measurement and evaluation for optimum student learning.
- EDU 588 Developing Vocational Skills for the Mild/Moderately Handicapped, Ages 3-21 (3) OD**
 Exploration of current, innovative vocational programs for the trainable and educable mentally handicapped; why and how these programs developed; ways to implement such programs.
- EDU 590 First-Year Teacher Induction Workshop (3) OD**
 Designed to facilitate teaching during the first year of experience. Participants will prepare for their first year of teaching by becoming familiar with their new school; preparing a calendar; curriculum materials; and teaching materials specific to their school setting. Assistance will be provided during the first weeks of the school year. P: Certified to teach; contracted for a Fall teaching position.
- EDU 591 Secondary School Observation and Student Teaching (3-7) I, II**
 Practical experience in the observation and conduct of classroom teaching and related activities. This experience is obtained under the immediate supervision of a fully experienced cooperating teacher and a University supervisor. Application to the Director of Field Experiences for all student teaching must be made before February 1 for the Fall Semester and October 1 for the Spring Semester. P: EDU 341-342 or EDU 551-552 and 525, 548, Sr. stdg., and 1 methods course from EDU 660-670; CO:EDU 592 and 593.
- EDU 592 Advanced Secondary School Observation and Student Teaching (3-7) I, II**
 Practical experience in the observation and conduct of classroom teaching and related activities. This experience is obtained under the immediate supervision of a fully experienced cooperating teacher and a University supervisor. Application to the Director of Field Experiences for all student teaching must be made before February 1 for the Fall Semester and October 1 for the Spring Semester. P: EDU 551-552, 525, 548 and 1 methods course from EDU 660-670; CO: EDU 591 and 593
- EDU 593 Seminar in Secondary School Observation and Student Teaching (1) I, II**
 Student teachers deal with issues of classroom management, communication with families and communities, applications, portfolios, interviews, and relevant teaching concerns. CO: EDU 591 and 592.

- EDU 600 Principles of Curriculum Construction for Elementary and Secondary Schools (3) II, S**
Course designed to prepare educators for instructional leadership in identifying curriculum determiners, planning procedures, and evaluation processes for both elementary and secondary schools.
- EDU 603 Leadership in Catholic Schools: The Educational Domain (1) S, OD**
Designed for both practicing and aspiring administrators, this course will address the educational domain of leadership and will focus on promoting a community of leaders through discussion of educational trends, initiatives, and “best practices.”
- EDU 604 Leadership in Catholic Schools: The Spiritual Domain (1) S, OD**
Designed for both practicing and aspiring administrators, this course will address the spiritual domain of leadership and focus on the principal as builder of a faith community.
- EDU 605 Leadership in Catholic Schools: The Managerial Domain (1) S, OD**
Designed for both practicing and aspiring administrators, this course will address the managerial domain of leadership and will focus on finance, development, and legal issues as they apply to the Catholic school setting.
- EDU 609 Principles of Organization and Administration for Elementary and Secondary Schools (3) II**
Introduction to the processes of educational administration. Exploration of the role and responsibility of elementary and secondary school principals, policies and procedures, and the principalship as a profession.
- EDU 610 Special Education Topics for Administrators (3) S**
Provides an orientation to special education issues and laws for regular education administrators. Covers essential knowledge of special education terms, procedures, and disabilities, as well as many of the common problems and issues that occur in the supervision of special education programs. Meets the requirement for coursework in special education required for all new administrator certificates (LB392) issued after September 1, 1992. P: EDU 501.
- EDU 615 Educational Research (3) I, II**
Introduction to three general educational research methods — historical, descriptive, and experimental. Students will manage a small-scale study.
- EDU 616 Consulting Techniques (3) S 1994**
Course designed to acquaint students with models for providing consultation to schools, teachers, and students. Distinction between medical and consultation models is provided, and goals for consultant behaviors and the culture of the school are discussed. Emphasis on problem-solving, collaborative consultation, curriculum-based measurement, and precision teaching.
- EDU 620 Practical Aspects of School Law for Teachers and Administrators (3) I, alternate S**
The legal rights, duties, and liabilities of school personnel in relation to their employer, colleagues, pupils, and parents.
- EDU 622 Improving Your School-Community Relations (3) S**
Examination of the principles and practices used to improve the public relations between the school, parents and community.
- EDU 623 Managing the School Climate (3) S**
Examination of the factors and strategies that create a school environment conducive to learning. Emphasis on the leadership role of the administrator in establishing a safe and productive learning climate.
- EDU 624 Supervision of Learning (3) I, S**
Reviewing and appraising the instructional process; organizing the supervision program with attention to the leadership role of the principal; developing in-service programs and promoting professional growth.
- EDU 625 Practical Knowledge of School Finance for Teachers and Administrators (3) II, alt. S**
Designed to meet the needs of elementary or secondary school principals and teachers in the fiscal and business aspects of school operation.

- EDU 628 Field Service Experience in Elementary School Administration (3) I, II**
Internship available to students who wish to qualify for a principal's certificate. Program is directed by the Department of Education and the chief executive officer of the school in which the intern is placed. P: 18 hrs. of core requirements; DC.
- EDU 630 Field Service Experience in Secondary School Administration (3) I, II**
Internship available to students who wish to qualify for a principal's certificate. Program is directed by the Department of Education and the chief executive officer of the school in which the intern is placed. P: 18 hrs. of core requirements; DC.
- EDU 632 Identification and Evaluation of Gifted and Talented Students (3) I**
This course is an overview of the education of gifted and talented children with particular attention on the means of identifying these students and on the evaluation of their development in educational settings.
- EDU 633 Models, Methods, and Materials: Meeting the Needs of Gifted and Talented Students in the Regular Classroom (3) I**
This course focuses on instructional models, methods, and materials in the education of gifted and talented children. This course is intended for both regular classroom teachers and those who will work exclusively with gifted and talented children. P: EDU 632.
- EDU 634 Social and Affective Development of Gifted and Talented Students (3) II**
This course explores the development of gifted and talented children within the social and affective domains. Theories of development are studied looking for ways in which development can be enhanced in these domains. Strategies for counseling and guidance activities with gifted and talented children are presented. P: EDU 632.
- EDU 635 Differentiating Curriculum for High Ability Learners (3)**
This course will build on teachers' expertise to modify and create curriculum appropriate for all learners. Topics will include: understanding differentiation, curriculum compacting, contracts, independent projects, flexible grouping, tiered assignments, high level questioning, acceleration, and enrichment. Evaluation of effective curricular learning will be included. P: EDU 632 and 633.
- EDU 636 Topics and Issues in High Ability Education (3)**
The content of this course will include timely instructional, curricular, and legal issues impacting High Ability Education presented in a combination of lecture, seminar, and presentation formats. P: EDU 632 AND 633.
- EDU 640 Practicum in High Ability Education (3)**
This is an opportunity for endorsement-seeking students to spend time—a minimum of 90 contact hours—in classrooms with gifted and talented children. In addition to structuring curriculum, and identifying and teaching the gifted and talented children, students in this course will be involved in a seminar that addresses the problems and issues in gifted and talented education. P: EDU 632, 633, 634, 635, 636.
- EDU 660-670 Special Graduate Methods (3) I**
Each course deals with the objectives and functions of the particular subject in terms of secondary school learning experiences for those at the graduate level. Attention is directed to the selection, organization, and presentation of meaningful materials; selection, use and evaluation of textbooks and related materials. P: or C: EDU 551
- 660 Teaching of Art
661 Teaching of English
662 Teaching of Journalism
663 Teaching of Mathematics
664 Teaching of Modern Languages
664 Teaching of Science
666 Teaching of Social Studies
667 Teaching of Speech
668 Teaching of Drama
670 Teaching of Latin

- EDU 680 Spirituality of Teaching - Part 1 (1) S**
 This course is designed to integrate the three pillars of the Mentoring Academic Gifts In Service (MAGIS) program: professional, spiritual, and communal. It is taught through lecture, large and small group discussions based on the assigned readings and on the effective completion of all written assignments. The assignments are designed to produce artifacts for a summative portfolio. P: Dept. approval.
- EDU 681 Spirituality of Teaching - Part 2 (1) S**
 This course is part 2 of the Spirituality of Teaching. It continues to integrate the three pillars of the Mentoring Academic Gifts In Service (MAGIS) program: professional, spiritual, and communal. It is taught through lecture, large and small group discussions based on the assigned readings and on the effective completion of all written assignments. The assignments are designed to produce artifacts for a summative portfolio. P: Dept. approval.
- EDU 686 Beginning Practicum in Secondary Education (1) I**
 This course is part of the MAGIS student's education and training program. MAGIS students learn principles and practices of teaching in a secondary school. The course addresses planning for instruction, teaching methods, and assessing student achievement and communicating assessments to students, parents, and administrators. Students practice their skills as the teacher of record with the support and guidance of a mentor teacher, principal, and MAGIS director. P: EDU 551; Dept. approval.
- EDU 687 Advanced Practicum in Secondary Education (1) II**
 This course is part of the MAGIS student's education and training program. MAGIS students learn principles and practices of teaching in a secondary school. The course addresses planning for instruction, teaching methods, and assessing student achievement and communicating assessments to students, parents, and administrators. Students practice their skills as the teacher of record with the support and guidance of a mentor teacher, principal, and MAGIS director. P: EDU 686.
- EDU 688 Beginning Internship in Secondary Education (3) I**
 This course is part of the MAGIS student's education and training program during the second year. MAGIS students learn principles and practices of teaching in a secondary school. The course addresses planning for instruction, teaching methods, and assessing student achievement and communicating assessments to students, parents, and administrators. Students practice their skills as the teacher of record with the support and guidance of a mentor teacher, principal, and MAGIS director. P: EDU 687
- EDU 689 Advanced Internship in Secondary Education (3) II**
 This course is part of the MAGIS student's education and training program during the second year. MAGIS students learn principles and practices of teaching in a secondary school. The course addresses planning for instruction, teaching methods, and assessing student achievement and communicating assessments to students, parents, and administrators. Students practice their skills as the teacher of record with the support and guidance of a mentor teacher, principal, and MAGIS director. P: EDU 688
- EDU 692 Cultural Issues in Education (3) II, S**
 Course emphasizes the global dimensions in education dealing with multi-cultural issues and the role of the teacher. This course meets the Nebraska Department of Education human relations requirement.
- EDU 793 Directed Independent Readings (Credit by Arrangement) I, II, S**
 Intensive reading in an area as approved by the department. P: DC
- EDU 795 Directed Independent Study (Credit by Arrangement) I, II, S**
 Independent research on a topic designed by the student with the approval of an adviser from the department. P: DC
- EDU 797 Directed Independent Research (Credit by Arrangement) I, II, S**
 P: DC

- EDU 799 Master's Thesis (1-3) I, II**
Research in connection with the preparation of the Master's thesis. Student must register for this course in any term when engaged in formal preparation of the Master's thesis; however, six credit hours are the maximum applicable toward the degree. P: DC

COUNSELOR EDUCATION (COU)

- COU 540 Professional Orientation and Ethics in Counseling (3) I, II, S (Same as PSY 540)**
A survey of the counseling process including the role of the counselor, characteristics of clients, helping and referral skills, and theories of counseling. P: Sr. stdg.
- COU 542 Seminar in Counseling (1) I, II, S**
Self assessment of skills appropriate to counseling by means of psychometric assessment and participation in a personal growth group. P: IC. CO: COU 540.
- COU 544 Life Span Development (3) I, S, AY**
Focuses on a broad overview of physical, special, and psychological aspects of human development from conception to old age. P: Jr. stdg.
- COU 573 Treatment Modalities in Marriage and Family Therapy (3) OD (Same as SWK 573)**
The primary family systems modalities in marriage and family therapy are presented both in theory and in case study analysis. The presenting problem, history of the problem, family history, identification of dysfunctional dynamics, goals, plan of treatment, and outcome/evaluation are emphasized in each modality. P: IC.
- COU 575 Introduction to Peer Education in Student Development Programming (3) OD**
Introductory course in the conceptualization, development, and practical application of innovative outreach programming in student service settings. Emphasis on presentation development in such areas as interpersonal relationships, health and wellness issues, stress management, alcohol and drugs, career planning, and leadership development. P: Jr. stdg.
- COU 580 Theory and Treatment of Addictive Disorders (3) I**
Presentation of substance abuse theory, various treatment approaches, and intervention strategies which are currently in use in chemical dependency treatment and prevention programs. Students will have the opportunity to explore several theoretical approaches, incorporate these approaches into their own on-going developmental body of knowledge, and develop an integration plan to utilize their own personal theory of counseling in a program of treatment for chemical dependency. P: Jr. stdg.
- COU 582 Family Dynamics of Addictive Disorders (3) OD**
Designed to provide students with an understanding of various ways in which the family is affected by the addiction of one or more of its members. Students will have the opportunity to explore several theoretical approaches to family work, become aware of current research in the area, gain an understanding of current intervention strategies used with the family, and explore the variety of ways in which the family is involved in the rehabilitation process. P: Jr. stdg.
- COU 590 Counseling Significant Losses (3) I**
An investigation of the counseling process as applied to life events that occur in the area of significant loss. An investigation of the role of the counselor, characteristics of clients, helping and referral skills, and theories of counseling as applied to significant loss events. P: IC.
- COU 610 Counseling Theories and Methods (3) I, II, S**
Course presents theories of counseling, processes associated with each theory, and the goals which each theory attempts to reach. P: COU 540.
- COU 612 Practicum in Counseling (3) I, II, S**
Course designed to enhance the development of counseling skills and practices. Students will use laboratory facilities to learn and practice counseling behaviors with students peers. P: COU 540.

- COU 614 Selected Approaches to Individual Counseling (1-3) OD**
Focus on a selected theory or approach to individual counseling of the instructor's choosing; a short, concentrated learning experience emphasizing acquisition of skills in implementing the chosen approach.
- COU 615 Education Research (3) II, S**
Introduction to three general educational research methods — historical, descriptive, and experimental. Students will manage a small-scale study.
- COU 619 Counseling Diverse Populations (3) II**
This course will help counselors-in-training as well as practicing counselors to (1) become aware of personal biases in counseling, (2) deal with the “isms” apparent in modern society from a counseling viewpoint, (3) understand economic and cultural conditioning and its impact on both counselor and client problem-solving, (4) manage personal disclosure with clients of diverse populations, and (5) develop a coherent and appropriate response to legal and ethical issues presented by members of diverse populations. P: COU 540.
- COU 620 Methods in Group Counseling (3) II, S, AY**
Principles and dynamics of group processes and interaction as related to counseling classes, role playing, and personal development in counseling. P: COU 610 & COU 612.
- COU 621 Practicum in Group Counseling (3) OD**
Course designed to enhance the development of group counseling skills and practices. Students will learn and practice the leadership behaviors involved in group counseling with student peers. P: COU 620.
- COU 622 Selected Approaches to Group Counseling (1-3) OD**
Focus on a selected theory or approach to group counseling of the instructor's choosing; a short, concentrated learning experience emphasizing acquisition of skills in implementing the chosen approach.
- COU 630 Appraisal Counseling (3) I, S, AY**
Consideration of psychometric theory and its implication for counselor usage of tests. Developing skills in test selection, administration, and interpretation. P: EDU 615.
- COU 640 Career Counseling and Programming (3) II, S, AY**
Theories of vocational development; types, sources, and use of occupational and educational information in career counseling and decision making. P: COU 620.
- COU 642 Counseling in the Elementary School (3) S, OD**
An orientation to counseling at the elementary school level through the study of current principles and practices of elementary school counseling.
- COU 644 Counseling in the Middle School (3) OD**
An orientation to counseling at the middle school level through the study of current principles and practices of middle school counseling.
- COU 646 Counseling in the Secondary School (3) S**
An orientation to counseling at the secondary school level through the study of current principles and practices of secondary school counseling.
- COU 648 Organization and Administration of Counseling Services (3) S**
Practices and problems in organizing, administering, supervising, and evaluating pupil personnel programs at various educational levels. This course was formerly numbered EDU 680—Organization and Administration of Guidance Services.
- COU 650 Seminar in College and Student Personnel Services (3) OD**
Recommended for those who anticipate seeking counseling positions at the collegiate level. Covers organization and administration of college student personnel services with an additional focus on understanding the developmental issues of the college student.

- COU 652 Community Mental Health (3) OD**
Presentation of the development, practice, and role of community mental health. Emphasis on developing an understanding of mental health and social policy as well as on acquiring skills in preventive intervention, mental health consultation, crisis intervention, and assessment of community structure and needs.
- COU 654 Preventive Mental Health (3) OD**
An overview of the concept of mental health with particular emphasis on developing strategies to enhance coping skills, self-esteem, and support systems, and to decrease organic factors, stress, and exploitation.
- COU 658 Selected Approaches to Family Counseling (1-3) OD**
Focus on a selected theory or approach to family counseling of the instructor's choosing; a short, concentrated learning experience emphasizing acquisition of skills in implementing the chosen approach.
- COU 670 Selected Topics in Counseling (3) S**
Theoretical and applied aspects of counseling as selected by the designated instructor.
- COU 680 Advanced Seminar in Counseling (1) I, II, S**
Further practice in counseling skills, development of a tentative, personal theory of counseling, and discussion of professional issues in counseling. P: Completion of all core course work.
- COU 682 Internship in Elementary-School Counseling (4) I, II**
Supervised, on-site experience in counseling with elementary-school clients. Experience in the full range of counselor duties and responsibilities in an elementary-school setting. P: All core requirements & IC.
- COU 683 Advanced Internship in Elementary-School Counseling (3-4) I, II**
A second, supervised, on-site experience in counseling with elementary school clients. Experience in the full range of counselor duties and responsibilities in an elementary school setting. P: All core requirements & IC.
- COU 684 Internship in Secondary-School Counseling (4) I, II**
Supervised, on-site experience in counseling with secondary-school clients. Experience in the full range of counselor duties and responsibilities in a secondary-school setting. P: All core requirements & IC.
- COU 685 Advanced Internship in Secondary School Counseling (3-4) I, II**
A second, supervised, on-site experience in counseling with secondary-school clients. Experience in the full range of counselor duties and responsibilities in a secondary-school setting. P: All core requirements & IC.
- COU 686 Internship in General Counseling (4) I, II, S**
Supervised, on-site experience in counseling with general agency/community clients. Experience in the full range of counselor duties and responsibilities in a community agency setting. P: All core requirements & IC.
- COU 687 Advanced Internship in General Counseling (3-4) I, II, S**
A second, supervised, on-site experience in counseling with general agency/community clients. Experience in the full range of counselor duties and responsibilities in a community agency setting. P: All core requirements & IC.
- COU 688 Internship in College Student Personnel Services (4) I, II, S**
Supervised, on-site experience in counseling with college clients. Experience in the full range of counselor duties and responsibilities in a college setting. P: All core requirements & IC.
- COU 689 Advanced Internship in College Student Personnel Services (3-4) I, II, S**
A second, supervised, on-site experience in counseling with college clients. Experience in the full range of counselor duties and responsibilities in a college setting. P: All core requirements & IC.

- COU 690 Internship in Addiction Counseling** (4) I, II, S
Supervised, on-site experience in counseling with addiction clients. Experience in the full range of counselor duties and responsibilities in an addiction treatment setting. P: All core requirements & IC.
- COU 691 Advanced Internship in Addiction Counseling** (3-4) I, II, S
A second, supervised, on-site experience in counseling with addiction clients. Experience in the full range of counselor duties and responsibilities in an addiction treatment setting. P: All core requirements & IC.
- COU 793 Directed Independent Readings** (Credit by Arrangement) I, II, S
Intensive reading in an area as approved by the department. P: DC.
- COU 795 Directed Independent Study** (Credit by Arrangement) I, II, S
Independent research on a topic designed by the student with the approval of an adviser from the department. P: DC.
- COU 797 Directed Independent Research** (Credit by Arrangement) I, II, S
Intensive research in an area as approved by the department. P: DC.
- COU 799 Master's Thesis** (1-3) I, II
Research in connection with the preparation of the Master's thesis. Students must register for this course in any term when engaged in formal preparation of the Master's thesis; however, six credit hours are the maximum applicable toward the degree.

ELECTRONIC COMMERCE (ECM)

Professors Gleason, Morse, Nath (Program Director), and Raval; *Associate Professors* Corritore, Marble and Workman; *Assistant Professors* Chen and Kracher.

Program and Objectives

The Master of Science in Electronic Commerce (M.S.-ECM) degree is designed to prepare students to assume leadership positions in the rapidly expanding field of e-commerce. Course work in the program is a mix of the technical, business, legal, and ethical aspects of conducting electronic business. The curriculum will provide students with a solid technical skill set in e-commerce technologies (Internet languages, e-commerce ready Web sites, database design, telecommunication infrastructure, etc.), as well as marketing, advertising, legal, control, and privacy issues. Graduates of this program will understand the strategies and tactics of e-commerce and be able to apply them in the changing business environment.

Distinguishing features of the program include: an interdisciplinary focus, strong alliance with business partners that will insure the relevance of the program's curriculum; special courses team-taught by faculty members and business executives; a capstone e-commerce project course designed to give students hands-on experience; and the Joe Ricketts Center for E-commerce and Database Marketing, which will provide critical resources for the program to draw upon.

To accommodate the diverse needs of our nontraditional students, all graduate business and technology courses are offered in the evenings, and occasionally on Saturdays. Full-time students should be able to complete the program, beyond the foundation courses, in less than two years; part-time students should be able to complete the program, beyond the foundation, within two to four years by attending classes year round.

Prerequisites for Admission

Enrollment in the M.S in Electronic Commerce program is on a competitive basis. An applicant must meet the following requirements in order to be considered for admission: a baccalaureate degree from an accredited institute of higher education,

regardless of the undergraduate field of study; evidence of high scholastic ability at the undergraduate level; and an acceptable score on the Graduate Management Admission Test (GMAT).

Applications for admission to the M.S in Electronic Commerce program should be sent to the Coordinator of Graduate Business Programs in the College of Business Administration. The application must include the following: completed application form, resume, and application fee; one official transcript from each college of university attended to be sent directly by the college our university to the Coordinator of Graduate Business Programs; a personal essay; official score report of 450 or higher on the Graduate Management Admission Test, and three completed recommendation forms. The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by achieving a minimum score of 550 or 213 on the Computer-Based Test (CBT) on the Test of English as a Foreign Language (TOEFL) examination.

Applicants are responsible for arranging to take the GMAT and TOEFL and for requesting the Registrar of each college of university to mail one official transcript to the Coordinator of Graduate Business Programs.

General Requirements

The Master of Science in Electronic Commerce program consists of 33 semester hours of graduate credit beyond the required foundation courses. All students complete the 21 hours of core components, 9 hours of electives, and a 3 hour E-commerce project course or thesis.

I. Core Component (21 credit hours)

- MBA 773 Business and Society
- MBA 777 Practical Ethics for Business Leaders or
- MBA 778 Business, Technology and Ethics
- ECM/ITM 782 Data Base Management Systems
- ECM/ITM 710 Development Technologies for the Web
- ECM/ITM 734 Human Factors in Information Systems
- ECM 760 E-commerce and Marketing
- ECM 770 Management Control and Security of E-commerce
- ECM 775 Strategic Issues in E-commerce

II. Elective Component (9 credit hours)

- LAW 397 Legal Issues in E-commerce
- ITM 735 Information Systems Project and Risk Management
- ITM738 Emerging Technologies
- ITM 787 Object Oriented Design with Java
- ITM 788 Information Systems Analysis and Logical Design
- ECM/ITM 740 Data Mining Techniques for Business
- ECM/ITM 784 User Interface Design for the Web
- ECM/ITM 786 Telecommunications Infrastructure
- ECM 750 Special Topics in E-commerce
- CSC 644 Information Retrieval System Design
- CSC 655 Advanced Computer Graphics
- Other 700-level courses as approved by the E-commerce Program Director.

III. Capstone Course or Master's Thesis (3 credit hours)

- ECM 780 E-commerce Project or ECM 799 Master's Thesis

Special Requirements

At least one-half of the foundation courses must be completed before students will be allowed to enroll in their first 700-level course, with the exception of the foundation course, ECM 701 Commerce in the Digital Age. Additional 700-level courses may be taken as foundation courses are completed. Students should consult with the Coordinator of Graduate Business Programs for further information. Foundation courses, with the exception of ECM 701 Commerce in the Digital Age, can be completed using undergraduate courses or the 500-level foundation courses. Enrollment in 500-level foundation courses and graduate-level courses is limited to students who have been admitted to the M.S. in Electronic Commerce program. Concurrent enrollment in graduate-level courses and foundation courses is permitted provided the necessary prerequisites have been met for the graduate-level courses

M.S. in Electronic Commerce Foundation Courses

(Open only to students enrolled in the Graduate Business Programs)

Note: Foundation courses are waived in each subject area for students who have satisfactorily completed equivalent courses prior to admission to the M.S. in Electronic Commerce program. Acceptable 500-level courses or undergraduate equivalents with course descriptions may be found in the *Undergraduate Issue of the Creighton University Bulletin*.

- CSC 221 Computer Programming I (3)**
Computer organization; algorithm development; structured programming design. P: MTH 135.
- CSC 222 Computer Programming II (3)**
Further algorithm development and structured programming design; simple data structures; string processing; searching and sorting techniques. P: CSC 221.
- ECM 701 Commerce in the Digital Age (2)**
This course provides an introduction to the concepts of electronic commerce as facilitated by the Internet, WorldWide Web, and related technologies. The topics covered include: an understanding of the catalysts for e-commerce (business-to-business [B2B] and business-to-customer [B2C]), convergence of technologies and capabilities, technological challenges, legal and regulatory framework, behavior and educational challenges, organizational and business barriers, and strategies for e-commerce. A combination of lectures, discussions, presentations, and student projects will be used to gain a broad understanding of the dynamic field of e-commerce. P: IC.
- MBA 526 Statistical and Mathematical Applications in Business (3)**
Use of descriptive and inferential statistical methods and mathematical tools for the analysis of business and economic data. Topics include probability distributions, confidence intervals, tests of hypothesis, multiple regression and correlation, time series analysis, and index numbers, basic rules of differentiation, simple maximization and minimization techniques and business applications of derivatives. Acceptable undergraduate equivalent: MTH 141 or MTH 245 and BUS 229.
- MBA 541 Fundamentals of Economic Analysis (3)**
Major micro- and macroeconomics principles and analysis of major economics problems and policies. Acceptable undergraduate equivalent: ECO 203 and ECO 205.
- MBA 562 Fundamentals of Marketing (2)**
Managerial approach to the study of problems of marketing with emphasis on marketing strategy and development of marketing mix. P: ECO 203 or MBA 541. Acceptable undergraduate equivalent: MKT 319.
- MBA 584 Fundamentals of Management (2)**
Evolving study of concepts, theory, research, and operational problems of management. Examination of necessary factors and relationships to establish and achieve organizational objectives: goals, policies, procedures; the planning process; control systems;

organizational structure and behavior; leadership. Acceptable undergraduate equivalent: MGT 301.

M.S. - E.C.M. Core Component (21 credit hours)

(Open only to students enrolled in the Master of Science in Electronic Commerce (M.S.-ECM), Master of Science in Information Technology Management (M.S.-ITM), and Master of Business Administration (MBA) programs who have completed the necessary Foundation courses)

MBA 773 Business and Society (2)

The world of business is viewed as the arena in which all systems of thought, value, and behavior converge. Structure and function are examined in contexts of operational, directional, and constitutional goals. Students are challenged to order these complexities into a moral frame of reference that will provide both individual and organizational guidance while contributing to social justice. This course uses a case approach.

MBA 777 Practical Ethics for Business Leaders (1)

This course explores practical approaches business leaders can take for solving a current ethical issue in business. The specific issue covered can change.

MBA 778 Business, Technology and Ethics (1)

This course explores practical approaches business leaders can take for solving a current ethical issue in business. The specific issue covered can change.

ECM 710 Development Technologies for the Web (3)

As the interest in web sites becomes more widespread, so have peoples expectations. It is increasingly obvious that the functionality provided by HTML is insufficient. This is particularly true as more and more web sites are used to interact with databases. Many scripting and actual programming languages and environments such as CGI, Javascript, and flash are being turned to as they can provide the added functionality demanded by today's commercial web sites. This course will explore these and other technologies and use them to create web sites. P: ECM/ITM 734 or demonstrated experience with Dreamweaver and basic Javascript.

ECM 734/ITM 734 Human Factors in Information Systems (3)

Current trends in system design towards development of systems which fit in better with what humans find natural and easy to do motivate this course. The course focuses on information about human behavior, cognition, abilities and limitations, and other characteristics that are relevant to interaction with information systems. Specific strategies which apply these concepts in order to improve usability will be explored. Benefits of the incorporation of human factors into information processing systems such as less training, fewer errors, increased ability to perform complex operations, less stress, and faster work will also be discussed. Students will have the opportunity to incorporate human factor principles in an information system in order to maximize human-computer cognitive compatibility. P: One semester of a programming language or equivalent experience.

ECM 760 E-commerce and Marketing (3)

This course addresses the ways in which electronic commerce is changing the way firms market their products and services. Topics which will be addressed include advertising and selling on the Internet, the use of web sites to provide service and support to customers, consumer decision making when shopping on the Internet, and the development of databases which allow customization of products and services to specific customer segments. We will additionally address strategic issues such as how communication and distribution strategies are changing due to the Internet. The course will consider examples of using e-commerce to market to both business to business customers as well as to final consumers. While the primary emphasis will be on the Internet, we will additionally consider related information systems and communications technologies which support marketing on the Internet (e.g., telemarketing, database marketing). P: MBA 562.

ECM 770 Management Control and Security of E-commerce (3)

This course will enable students to know, comprehend, and analyze concepts and applications in the area of planning, control, and security of e-commerce systems and

applications, including a substantial emphasis on electronic payment systems. A spectrum of topics including risk management, control systems, security measures, encryption, performance evaluation, behavioral aspects, and assurance methods involved in e-commerce are covered. P: ECM/ITM 710 and ECM/ITM 782.

ECM 775 Strategic Issues in E-commerce (3)

This course focuses on the development of business strategies for using e-commerce within a firm. It will include a review of key foundational concepts in the field of strategic management and will then consider various strategies and business models for e-commerce. There will be an emphasis on alliances between organizations, value chain analysis, supply chain management, network organizational forms, and competing in rapidly changing environments. P: ECM 760 and ECM 770.

ECM 782/ITM 782 Data Base Management Systems (3)

Organizations must manage their data resources effectively in order to remain competitive. The efficient design, deployment, use and management of database systems requires an understanding of the fundamentals of database management systems, techniques for the design of databases and principles of database administration. This course emphasizes the fundamentals of database modeling, design and development, the languages and utilities provided by database management systems, and the techniques for implementing and managing database systems. Although primary emphasis will on relational database management systems, the object-oriented and distributed models will also be examined. P: ITM 731 or IC.

II. Electives (9 credit hours)

LAW 397 Legal Issues in E-commerce (2)

This course will explore the legal landscape confronting businesses taking part in the rapidly expanding global Internet economy. Numerous current legal issues will be explored in the course, including the impact of copyright, trademark and trade secret laws, contract and jurisdictional concerns, internet payment systems and the need for strong, reliable security, encryption and digital signature issues, and First Amendment concerns related to privacy and defamation. The course will rely upon information on the Internet, so students should be comfortable searching and navigating the Internet. P: Open only to law students and students in the M.S. in Electronic Commerce program.

ECM 740/ITM 740 Data Mining Techniques for Business (3)

Advances in information and data capture technologies have accelerated the rate at which organizations are able to gather large volumes of data pertaining to customers, suppliers, competitors, and other entities of interest. These databases are rarely tapped for the wealth of information they may hide. The purpose of this course is to deal with the issue of extracting information and knowledge from large databases. The extracted knowledge is subsequently used to support human decision-making with respect to summarization, prediction, and the explanation of observed phenomena (e.g. patterns, trends, and customer behavior). Techniques such as visualization, statistical analysis, decision trees, and neural networks can be used to discover relationships and patterns that shed light on business problems. This course will examine methods for transforming massive amounts of data into new and useful information, uncovering factors that affect purchasing patterns, and identifying potential profitable investments and opportunities. P: MBA 526 or BUS 229.

ECM 750 Special Topics in E-commerce (1 - 3)

The course will cover current topics in e-commerce and the content of this course will vary depending upon the instructor and topic. P: IC.

ECM 784/ITM 784 User Interface Design for the Web (3)

Interface design for web sites is essentially about providing meaning to a mass of visual information, while at the same time making it interesting. Ensuring the best possible experience for users who can easily and quickly leave a site is paramount. This, along with rapidly improving technologies which facilitate greater design expression, latitude,

and interactivity, make meeting the ever increasing expectations of users central. A well-designed page must incorporate visual cues and navigation, as well as aesthetic appeal. This course discusses how to design effective visual interfaces suitable for web sites, and incorporates concepts from the fields of user interface design, graphic design, and programming to design and create compelling web sites. P: ECM/ITM 734, ITM 788 and ITM 735.

ECM 786/ITM 786 Telecommunications Infrastructure (3)

This course is designed to provide the student with an understanding of the technical and managerial aspects of business data communications and networks. This course will prepare a student, by providing them with examples of network concepts, design and planning of networks to meet the enterprise needs. P: ITM 731 or IC.

ITM 735 Information Systems Project and Risk Management (3)

The role of systems analysis, decision analysis, and risk analysis in the project management process: analytical techniques of project management including CPM/PERT; use of project management software; management of software development projects. P: MBA 523.

ITM 738 Emerging Technologies (3)

According to Moore's law, the amount of information storable in one square inch of silicon has roughly doubled yearly every year since the technology was invented. This phenomenon is causing numerous new and promising advances in information technology. Businesses capitalizing early on the adoption of some of these key technologies stand to gain significant competitive advantage. Unfortunately, organizations are in a quandary with respect to the identification, use and management of these emerging technologies. The primary focus of this course will be on the identification, acquisition, management and use of emerging technologies. P: ITM 731, ECM/ITM 782, and ITM 786.

ITM 788 Information Systems Analysis and Logical Design (3)

An applied study of the process of information systems development. Lectures, discussions, readings and exercises will address the areas of information analysis, requirement determination, detailed logical design, physical design, implementation planning, computer technology and organizational behavior. Through regular deliverables associated with the cumulative project file of a running case, students will follow a widely used structured development methodology (the data flow diagramming approach) in conducting team-oriented systems analysis and design projects. P: ITM 731 and ITM 735.

CSC 644 Information Retrieval System Design (3)

Review of information retrieval problems; functional overview of information retrieval; deterministic and probabilistic models; text analysis and automatic indexing; query formulation; system/user interfacing and learning mechanisms; intelligent system design; retrieval evaluation; experimental information retrieval systems; applications to natural language processing. P: CSC 527.

CSC 655 Advanced Computer Graphics (3)

Graphic hardware, projective geometry 2D and 3D, interaction, curves, surfaces, solids, color, and the elusive search for reality. P: The general knowledge of the C language is assumed.

AND other 700-level courses as approved by the Director of the Electronic Commerce program.

III. Capstone Component or Master's Thesis (3 credit hours)

ECM 780 E-commerce Project (3)

In this course, the student undertakes a significant research project under the guidance of a faculty mentor. The project will deal with topics in the area of e-commerce that are of significant value to businesses. Established research methodologies will be used in identifying, examining, synthesizing, and disseminating information. P: All Core courses.

ECM 799 Master's Thesis (3)

Students wishing to pursue the thesis option for satisfaction of degree requirements are responsible for identifying an ECM faculty member who is willing to supervise the thesis. Acceptance of thesis supervision responsibility is at the sole discretion of the faculty member. Hence, the thesis option may not be available for all interested students. Prior to enrollment in the thesis course a written proposal for the thesis must be approved by a majority of the ECM program faculty. Pursuant to a defense of the thesis, the completed thesis must be approved by a majority of the ECM program faculty before a grade is assigned. Thesis students will be required to enroll in ECM 799 in two consecutive semesters, normally their final two semesters in the program. Only three of these hours may be used toward the fulfillment of elective course requirements.

Juris Doctor- Master of Science in Electronic Commerce Combined Program

Students, who are interested in the legal, business and technical aspects of e-commerce, have the opportunity to obtain a Master of Science in Electronic Commerce (M.S.-ECM) and Juris Doctor (JD) through a joint degree program offered by the College of Business Administration and the School of Law. This program allows students to earn separate J.D. and M.S. degrees in less time than required to complete each degree individually and for less cost.

Candidates for this combined program must make separate application to, and be independently accepted by the School of Law and the College of Business Administration. Although the student must meet all admission requirements of each program, acceptance does not have to occur simultaneously. However, the student must make application for the second program while still actively enrolled in the first in order to be considered for the combined program. Up to 6 hours of law school coursework may be applied toward electives in the M.S. program, while up to 12 hours of graduate business courses may be applied as electives for the J.D. program. Further details concerning the combined program may be obtained from the Law School or the Graduate Business Program.

ENGLISH (ENG)

Professor Garcia; Associate Professors Keegan (Chair), Chiwengo, Dornsife, Fajardo-Acosta, T. Kuhlman, Spencer, Stein, Whipple, Zacharias; Assistant Professors Aizenberg, Churchill, Gardiner, Houston, Rettig, Stefaniak, and Stenberg.

Programs and Objectives

English graduate programs are divided into two broad categories: degree programs and certificate programs.

Degree programs are programs leading to the degree of *Master of Arts* and all are constructed upon a foundation of literary study.

TRACK 1: MASTER OF ARTS WITH CONCENTRATION IN LITERATURE (33 Sem. Hrs.)

- I. Required Foundation Courses (6 hours)
 - ENG 600: Introduction to Graduate Study
 - ENG 721: Seminar in Literary Criticism
- II. Seven Courses selected from the following (21 hours)
 - ENG 701: Seminar in Medieval Literature
 - ENG 703: Seminar in Renaissance Literature
 - ENG 705: Seminar in Neoclassical Literature
 - ENG 707: Seminar in Romantic Literature
 - ENG 709: Seminar in Victorian Literature
 - ENG 711: Seminar in American Literature to 1865

ENG 713: Seminar in American Literature 1865-1914
ENG 715: Seminar in Modern English and American Literature
ENG 717: Seminar in Irish Literature
ENG 722: Topics in Rhetoric and Composition Theory
(The candidate may petition the Graduate Director to substitute up to two
Studies or Private Readings courses in lieu of seminar requirements.)

- III. Required Capstone Courses (6 hours)
ENG 798: Master's Thesis or Three-Paper Option
ENG 680 or 681 or 682: Supervised Teaching Practicum

TRACK 2: CONCENTRATION IN RHETORIC AND COMPOSITION (33 hours)

- I. Required Foundation Courses (6 hours)
ENG 600: Introduction to Graduate Study
ENG 721: Seminar in Literary Criticism
- II. Required Composition Core (12 hours)
ENG 720: Topics in the History of Composition and Pedagogy
ENG 722: Topics in Rhetoric and Composition Theory
ENG 723: Topics in Technology and Rhetoric
ENG 724: Topics in Rhetoric and Composition Pedagogy
- III. Literature Support Unit (9 hours)
Any three Literature Seminars, selected in consultation with the Graduate
Director.
- IV. Required Capstone Courses (6 hours)
ENG 798: Master's Thesis or Three-Paper Option
ENG 680 or 681 or 682: Supervised Teaching Practicum

*TRACK 3: MASTER OF ARTS WITH CONCENTRATION IN TEACHING
(33 Sem. Hrs.)*

- I. Required Foundation Courses (6 hours)
ENG 600: Introduction to Graduate Study
ENG 721: Seminar in Literary Criticism
- II. Required Composition Core (9 hours)
ENG 722: Topics in Rhetoric and Composition Theory
ENG 723: Topics in Technology and Rhetoric
ENG 724: Topics in Rhetoric and Composition Pedagogy
- III. Required Literature Core (12 hours, selected from the following)
ENG 701: Seminar in Medieval Literature
ENG 703: Seminar in Renaissance Literature
ENG 705: Seminar in Neoclassical Literature
ENG 707: Seminar in Romantic Literature
ENG 709: Seminar in Victorian Literature
ENG 711: Seminar in American Literature to 1865
ENG 713: Seminar in American Literature 1865-1914
ENG 715: Seminar in Modern British and American Literature
ENG 717: Seminar in Irish Literature
ENG 719: Seminar in Teaching World Literature
- IV. Required Capstone Courses (6 hours)
ENG 798: Master's Essay or Three-Paper Option

ENG 680 or 681 or 682: Supervised Teaching Practicum

TRACK 4: MASTER OF ARTS IN ENGLISH WITH A CONCENTRATION IN CREATIVE WRITING (33 Sem. Hours)

- I. Required Foundation Courses (6 hours)
ENG 600: Introduction to Graduate Study
ENG 721: Seminar in Literary Criticism
- II. Required Creative Writing Core (12 hours)
ENG 640: Beginning Workshop (4 sections)
- III. Literature Support Unit (9 hours)
Any three literature seminars, selected in consultation with the Graduate Director.
- IV. Capstone Courses (6 hours)
ENG 683: Supervised Practicum in the Teaching of Creative Writing
ENG 798: Creative Thesis
- V. Additional Requirements
Second Language Proficiency: translation of poetry
Comprehensive Examination

Additional Requirements in all Tracks: A take-home integrative comprehensive in the second year that forces synthesis among the various periods; an examination to test a reading knowledge of a major foreign language. A junior level foreign language course with a grade of B can be used in lieu of this test.

Certificate programs are designed to meet the needs of students who already have a Master's degree but who wish to sharpen their teaching skills and study new developments in the field. These programs are also available to students who do not possess a Master's degree but who wish to pursue specialized interests in teaching beyond the undergraduate level.

Certificate in Rhetoric and Composition (15 hours)

Comprised of the Composition Core of the MA program in Rhetoric and Composition, the certificate program is designed for, but not restricted to, persons with a graduate degree of any type, but particularly in English or Language Arts, who desire advanced study in Rhetoric and Composition — in effect, a second Master's-level major area.

Certificate in Teaching English (15 hours)

Comprised of the Teaching Core of the MA program in Teaching English, the certificate program is designed for, but not restricted to, persons with a graduate degree or undergraduate degree in English or the Language Arts, who desire advanced study in the teaching of English and Language Arts — in effect, a second Master's-level major area.

NOTE: The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550 or 213 on the Computer-Based Test (CBT) in the TOEFL (Test of English as a Foreign Language) examination.

ENG 600 Introduction to Graduate Study (3) I

Bibliography, critical theory, and the use of electronic media in scholarship will be introduced, explored, and used in the process of literary scholarship and writing.

STUDIES IN ENGLISH — Course description for ENG 601-615: Topics, works, authors selected by the offering faculty member will be studied under close supervision and direc-

tion. Only one or two students per term will be accepted for a studies course. Only students with considerable background in the period will be admitted to the course. These are offered on demand.

ENG 601 Studies in Medieval Literature (3)

ENG 603 Studies in Renaissance Literature (3)

ENG 605 Studies in Neoclassical Literature (3)

ENG 607 Studies in Romantic Literature (3)

ENG 609 Studies in Victorian Literature (3)

ENG 611 Studies in American Literature to 1865 (3)

ENG 613 Studies in American Literature, 1865-1914 (3)

ENG 615 Studies in Modern English and American Literature (3)

ENG 617 Studies in Irish Literature (3)

Topics, works, authors selected by the offering faculty member will be studied under close supervision and direction. Only one or two students per term will be accepted for a studies course. Only students with considerable background in Irish Literature will be admitted to the course.

ENG 620 Studies in the History of Rhetoric (3)

Topics, works, authors selected by the offering faculty member will be studied under close supervision and direction. Only one or two students per term will be accepted for a studies course. Only students with background in rhetoric will be admitted to the course.

ENG 622 Studies in Rhetorical Theory (3)

Topics, works, authors selected by the offering faculty member will be studied under close supervision and direction. Only one or two students per term will be accepted for a studies course. Only students with background in rhetorical theory will be admitted to the course.

ENG 630 Studies in Literary Criticism (3)

Topics, works, authors selected by the offering faculty member will be studied under close supervision and direction. Only one or two students per term will be accepted for a studies course. Only students with background in literary criticism will be admitted to the course.

ENG 640 Creative Writing Workshop I ()

A group workshop focused on the individual writing interests of the students. Some will work on stories, others on poems, still others on creative non-fiction, and some on plays or screenplays.

ENG 680 Supervised Practicum in Writing (3)

In addition to weekly conferences and/or workshops, the student will work in the English Department Writing Center: tutoring students one-on-one, analyzing writing problems, using the computer as a tutorial aid.

ENG 681 Supervised Practicum in the Teaching of Composition (3)

In addition to weekly conferences and/or workshops, the student will assist a senior faculty member in the teaching of a composition course: preparing a syllabus, delivering lectures, leading discussions, making assignments, grading compositions, using the computer in the teaching process.

ENG 682 Supervised Practicum in the Teaching of Literature (3)

In addition to weekly conferences and/or workshops, the student will assist a senior faculty member in the teaching of a composition course: preparing a syllabus, delivering lectures, leading discussions, making assignments, grading compositions.

ENG 683 Supervised Practicum in the Teaching of Creative Writing (3)

In addition to weekly conferences and/or workshops, the student will assist a senior faculty member in the teaching of a creative writing course: preparing a syllabus, delivering lectures, leading discussions, making assignments, grading compositions, using the computer in the teaching process.

ENG 740 Principles of Literary Editing (3)

The course will cover the duties, responsibilities, and practices of the literary editor, including units on reviewing, editing, copy editing, proofreading, desktop and web publishing. The purpose of the course is to provide students with the skills necessary for the writing profession and for possible employment in publishing.

SEMINARS IN ENGLISH — Course description for ENG 701-722: Thorough and intensive study of the period. Students will write papers, make in-class presentations, participate in discussions. These are offered on a regular basis. See the Graduate Director for a Perpetual Calendar.

ENG 701 Seminar in Medieval Literature (3)

ENG 703 Seminar in Renaissance Literature (3)

ENG 705 Seminar in Neoclassical Literature (3)

ENG 707 Seminar in Romantic Literature (3)

ENG 709 Seminar in Victorian Literature (3)

ENG 711 Seminar in American Literature to 1865 (3)

ENG 713 Seminar in American Literature, 1865-1914 (3)

ENG 715 Seminar in Modern English and American Literature (3)

ENG 717 Seminar in Irish Literature (3)

ENG 720 Topics in the History of Rhetoric and Pedagogy (3)

ENG 721 Seminar in Literary Criticism (3)

ENG 722 Topics in Rhetoric and Composition Theory (3)

ENG 723 Topics in Technology and Rhetoric (3)

ENG 724 Topics in Rhetoric and Composition Pedagogy (3)

ENG 740 Principles of Literary Editing (3)

ENG 793 Directed Independent Readings (3)

ENG 795 Directed Independent Study (3)

ENG 797 Directed Independent Research (3)

ENG 798 Master's Essay or Three-Paper Option or Creative Thesis (3)

An essay of 50-75 pages on a topic agreed upon with the supervising faculty member. Upon completion, the paper will be reviewed and graded by a panel of three faculty members, including the supervising faculty member. The student will be expected to select the panel with the approval of the graduate director.



HEALTH SERVICES ADMINISTRATION (HSA)

Professor Robert A. McLean (Program Director)

Program and Objectives

Master of Health Services Administration (HSA) Program

The Master of Health Services Administration (HSA) Program is an interdisciplinary program designed to prepare graduates to assume leadership positions in health services organizations, e.g., hospitals, long-term care facilities, managed care organizations, insurance industry, community health organizations, medical group practices, integrated delivery systems. The HSA Program provides graduate education in a learning environment where ethical leadership, creative problem resolution, service to patients and communities, interdisciplinary enriched learning, teamwork, appreciation of diversity, and commitment to performance excellence are the hallmarks.

Prerequisites for Admission

- A baccalaureate degree from a regionally accredited US college or university or a recognized university abroad. A minimum grade point average of B (3.0) on a 4-point scale for either the entire undergraduate program or the last 60 semester hours of earned credit is a criterion for unconditional admission.
- Satisfactory Graduate Record Examination (GRE) or Graduate Management Admission Test (GMAT) scores or the completion of a doctoral degree (e.g., Ph.D., MD, JD, DDS, Pharm D, DPT, OTD).
- An introductory accounting course (ACC 201 & 202 or MBA 501 or an equivalent) is a prerequisite to Accounting for Health Services Organizations. This prerequisite can be completed after admission to the program.
- At least one course in each of descriptive statistics, managerial accounting, and microeconomics is highly recommended prior to admission.

Degree Requirements

The HSA Program curriculum incorporates a variety of teaching methods and opportunities that enable students to tailor their course selection toward their career interests. The curriculum requires a minimum of 48 semester credit hours consisting of 38 semester credit hours of core courses, 4 hours of integrative fieldwork experiences, and 6 semester credit hours in an area of concentration. Students without 2 years of health management experience will take human resource management as the concentration.

HSA 601 Health Services Information Management (4) I

Introduction to current and evolving information technologies, and planning, management and operational issues associated with information technology. Emphasis on building skills and knowledge in use of information technology solutions.

HSA 602 Ethical Dimensions of Health Services Leadership (2) I

Ethical analysis applied to clinical and administrative decision making. Addresses leadership challenges associated with use and allocation of organizational and clinical resources, system integration, managed care, payer incentives and technology.

HSA 603 Contemporary Health Services Management, Organizations, and Systems (3) I

Introduction to organization and management concepts, theories and issues relevant to the dynamic US health care system. Managed care, health system integration, and interorganizational linkages are discussed in the context of social, economic, political, legal and regulatory issues.

- HSA 604 Organizational Behavior in Health Services (3) S**
Traditional and contemporary perspectives of organizational psychology and behavior on individuals and groups in health care organizations. Emphasizes the leader's role in maximizing the human resource potential of a diverse health services workforce.
- HSA 605 Interdisciplinary Service to Patients and Populations (2) II**
Applies concepts of epidemiology, health behavior and role theory to understanding determinants of health status and the role of health providers in managing health risks of diverse populations. The leader's role in facilitating effective interdisciplinary collaboration and organizational focus on the patient and community is emphasized.
- HSA 606 Quantitative Methods in Health Services Operations (3) II**
Emphasizes inferential statistics, other analytic techniques, and their use in administrative decision making.
- HSA 607 Law, Policy, and Regulation in Health Services (3) II**
Laws, regulations, policies and legislative processes affecting administrative planning and decision-making processes in health care organizations.
- HSA 611 Accounting for Health Services Organizations (3) II**
Concepts of financial and managerial accounting and their relevance to health services organizations. Addresses cost-finding methods; internal control; internal and external financial reporting; and budgeting for operations, capital and cash flow management. P: HSA 601.
- HSA 612 Financial Management of Health Services Organizations (3) S**
Financial management of health organizations under alternative financing mechanisms. Addresses revenue and expense creation, financial analysis, managed care financing models and contract negotiation, risk, and capital acquisition and investment analysis. P: HSA 611.
- HSA 613 Health Economics (3) I**
Economic concepts and their application to the health services industry. Addresses demand, supply, distribution, utilization of resources, market theory and analytic techniques including cost-benefit and cost-effectiveness analysis.
- HSA 621 Strategic Management of Health Services Organizations I (3) S**
Planning and marketing concepts examined from a strategic management perspective. Topics addressed include mission statements, environment and competitor analyses, and strategy formulation and implementation. P or CO: HSA 612 and HSA 613.
- HSA 622 Integrative Experience in Health Services Administration (1) II**
Application of management knowledge and techniques to the analysis of an actual problem in a health care organization. Students will analyze and select among alternative solutions to resolving the problem. P: HSA 601, HSA 602, HSA 603, HSA 604.
- HSA 720 Organization Analysis and Health Service Improvement (3) I**
Capstone assessment and analysis of organizational effectiveness. Focus is on selecting and implementing change strategies designed to maximize performance excellence. Topics include CQI/TQM, reengineering, rapid-cycle change, and creativity/innovation. P: HSA 621, HSA 622; P or CO: HSA 721.
- HSA 721 Strategic Management of Health Services Organizations II (3) I**
The organization, financing, and performance of health systems in diverse settings. Case studies to examine and improve alignment among strategy, operational capabilities and infrastructure. P: HSA 621, HSA 622.
- HSA 722 Leadership Practicum in Health Services Administration (3) I**
Final integrative seminar and practicum experience based on analysis and solution of managerial problems. Application of management knowledge and skills in individually appropriate settings. P or CO: HSA 720, HSA 721.

HISTORY (HIS)

Professor R. Horning; Associate Professors Dugan, Elliot-Meisel (Chair), Mihelich, Super, Thomas, and Welch; Assistant Professors Calvert, Otsubo.

History is not offered as a graduate major. However, the following History courses may, with the approval of the major adviser, be included as specified in certain graduate degree programs offered by other departments.

- HIS 540 Contemporary International Relations** (3) II (Same as INR 540)
The historical foundations of contemporary international relations; includes international politics, international law, and case studies drawn from the Middle East, Canada, Ireland, Cyprus, South Africa, the Russian Federation and Eastern Europe, the Indian Sub-Continent, and the Republics of China.
- HIS 541 War and Society in the Modern World** (3) I (Same as INR 541)
A survey of military history from the 18th century up to and including current theories concerning future conflict to be waged with nuclear weapons.
- HIS 548 History of the Soviet Union: Its Formation and Fragmentation** (3) I
(Same as INR 548)
Revolution of 1905; World War I; Revolutions of 1917; Allied intervention; Civil War; NEP; Stalin-Trotsky rivalry; Stalin and the Second Revolution; World War II; relations with Eastern Europe, Asia, and the United States; internal political, economic, and literary movements from Khrushchev to the Gorbachev Era.
- HIS 562 United States Foreign Relations of the United States, 1890-1945** (3) I, AY (Same as INR 562)
The emergence of the United States as a world power from McKinley through the end of World War II.
- HIS 563 United States Foreign Relations Since 1945** (3) II, AY (Same as INR 563)
Origins of the Cold War; the “containment” policy, alliances, presidential doctrines, and the end of the Cold War.
- HIS 565 The United States and Canada: The Siamese Twins of North America** (3) I 1994-95
(Same as INR 565)
“The Siamese Twins of North America who cannot separate and live” are each other’s greatest trading partners, are jointly responsible for continental security, and are fiercely committed to their own independence. Then why did the United States invade Canada three times? Why did the Americans in Canada call themselves the “Army of Occupation” during World War II? Why did American draft-dodgers flee to Canada during the Vietnam War? Why are Americans so ignorant of Canada, especially when Canadian security is inextricably linked to their own? Explore the relationship between these neighbors who share the world’s longest undefended border; neighbors who are arguably as different as they are similar.
- HIS 566 United States and the Middle East Since World War II** (3) AY (Same as INR 566)
Survey of American foreign policy in the Middle East from World War II to the present. Topics include Truman’s Containment Policy in the Middle East; Truman and Israel; the Baghdad Pact; the Suez Crisis; the Eisenhower Doctrine; the Six-Day War of 1967; the effects of the Arab-Israeli War of 1973 and the oil embargo; Camp David Accords; the Carter Doctrine; Reagan and the Middle East.
- HIS 570 History of Canada** (3) OD (Same as INR 570)
Founding of New France; Anglo-French rivalry; Canada and the American Revolution; War of 1812; evolutionary process to independence; Canadian Confederation, 1867; World War I; Statutes of Westminster, 1931; World War II; Canadian-American relations, 1775 to the present; Trudeau Era; relationship of contemporary Quebec to the Confederation.

HIS 577 Cuba Under Castro (3)

The roots of the revolution from the earliest days of Cuban independence through the frustrated movements of 1933. The emergence of Fidel Castro and his M-26 rebellion in the overthrow of Batista. Castro's revolutionary domestic and international programs and the continuing controversies surrounding them.

STUDIES IN HISTORY — The following courses may include lectures, intensive reading, or investigative papers as assigned by the instructor and will be offered on demand.

- HIS 603 Proseminar in American Diplomatic History (3)** (Same as INR 603)
- HIS 604 Studies in Ancient History (3)** OD
- HIS 607 Studies in Medieval History (3)** OD
- HIS 608 Civil-Military Relations (3)** OD (Same as INR 608)
- HIS 609 Studies in Early Modern Europe I (3)** OD
- HIS 610 Studies in Early Modern Europe II (3)** OD
- HIS 611 Studies in European History: 19th Century (3)** OD
- HIS 612 Studies in European History: 20th Century (3)** OD
- HIS 614 Studies in European Diplomatic History Since 1939 (3)** OD (Same as INR 614)
- HIS 621 Studies in British History (3)** OD
- HIS 623 Studies in Irish History (3)** OD
- HIS 625 Studies in Jewish History (3)** OD
- HIS 631 Studies in Russian History I (3)** OD
- HIS 632 Studies in Russian History II (3)** OD
- HIS 635 Studies in Russian Diplomatic History (3)** OD (Same as INR 635)
- HIS 642 Studies in Modern French History (3)** OD (Same as INR 642)
- HIS 643 Studies in Modern German History (3)** OD (Same as INR 643)
- HIS 645 Studies in German Foreign Policy Since 1945 (3)** OD (Same as INR 645)
- HIS 650 Studies in United States History I (3)** OD
- HIS 651 Studies in United States History II (3)** OD (Same as INR 651)
- HIS 658 Studies in United States Constitutional History (3)** I
- HIS 664 Studies in United States Foreign Relations I (3)** OD (Same as INR 664)
- HIS 665 Studies in United States Foreign Relations II (3)** OD (Same as INR 665)
- HIS 667 Studies in United States Foreign Relations: Post World War II (3)** OD (Same as INR 667)
- HIS 668 Studies in United States Foreign Relations: United States and the Middle East (3)** OD (Same as INR 668)
- HIS 672 Studies in Latin American History (3)** OD (Same as INR 672)
- HIS 678 Studies in Contemporary Issues in Latin America (3)** OD (Same as INR 678)
- HIS 680 Studies in Inter-American Relations (3)** OD (Same as INR 680)
- HIS 683 Studies in Asian History (3)** OD
- HIS 684 Studies in Asian Diplomatic History (3)** OD (Same as INR 684)
- HIS 690 Studies in African History (3)** OD (Same as INR 690)
- HIS 693 Studies in the History of Science (3)** OD
- HIS 695 Special Problems in History (3)** OD

SEMINARS IN HISTORY — The following courses will include investigative papers and research projects as assigned by the instructor within the framework of the general course title.

- HIS 704 Seminar in Jewish History (3)**
- HIS 715 Seminar in European Intellectual History: The Enlightenment (3)** OD
- HIS 716 Seminar in European Diplomatic History Since 1919 (3)** OD (Same as INR 716)
- HIS 719 Seminar in Modern European History (3)** OD (Same as INR 719)
- HIS 729 Seminar in British History: 20th Century (3)** OD (Same as INR 729)
- HIS 736 Seminar in Russian History: 19th Century (3)** OD
- HIS 737 Seminar in Russian History: 20th Century (3)** OD (Same as INR 737)
- HIS 753 Seminar in United States History Before 1877 (3)** OD
- HIS 757 Seminar in United States History Since 1877 (3)** OD
- HIS 769 Seminar in United States Foreign Relations (3)** OD (Same as INR 769)
- HIS 771 Seminar in United States Constitutional History (3)** S

- HIS 773 Seminar in Latin American History** (3) (Same as INR 773)
HIS 780 Seminar in Inter-American Relations (3) (Same as INR 780)
HIS 782 Seminar in the History of the Modern Middle East (3) (Same as INR 782)

Special Graduate Courses

- HIS 793 Directed Independent Readings** (Credit by Arrangement) I, II, S
Intensive reading in an area as approved by the department.
- HIS 795 Directed Independent Study** (Credit by Arrangement) I, II, S
HIS 797 Directed Independent Research (Credit by Arrangement) I, II, S
HIS 799 Master's Thesis (1-3) I, II, S
Research in connection with the preparation of the Master's Thesis. Student must register for this course in any term when engaged in formal preparation of the Master's thesis; however, six credit hours are the maximum applicable toward the degree.

INFORMATION TECHNOLOGY MANAGEMENT (ITM)

Professors Gleason, and Nath (Program Director); Associate Professor Corritore and Marble; Assistant Professor Chen.

Program and Objectives

The Master of Science in Information Technology Management (M.S.) degree is a 33 credit hour program. The course of study provides a creative synergy between technology and management. It is applied in orientation, and current to meet the demands of a constantly changing technological environment. Students receive comprehensive information technology education, while working toward the specialization best suited to their professional goals. The M.S. program was designed in consultation with area businesses and professionals, including the Applied Information Management (AIM) Institute.

The M.S. student may specialize in an area of interest while benefiting from a broad-based approach to business and information science. Courses are conducted using a combination of lecture and theory, case analysis, group projects, and student research. This approach provides an optimal balance of pedagogy and practical application for students. The classroom experience is enhanced by small class size and a low student-to-faculty ratio.

To accommodate the diverse needs of our nontraditional students, all graduate business and technology courses are offered in the evenings. Full-time students may be able to complete their course of study in as little as 12 months beyond the foundation; part-time students may be able to complete a degree within two to four years attending classes year round.

Prerequisites for Admission

Enrollment in the M.S. program is open to any qualified person who meets the following requirements: a baccalaureate degree from an accredited institute of higher education, regardless of the undergraduate field of study; evidence of high scholastic ability at the undergraduate level; an acceptable score on the Graduate Management Admission Test (GMAT).

Applications for admission to the Master of Science in Information Technology Management Program should be sent to the Coordinator of Graduate Business Programs in the College of Business Administration. The application must include the following: completed application form, current resume, and application fee; one official transcript from each college or university attended to be sent directly by the college or university to the Coordinator of Graduate Business Programs; official score report of 450 or higher on the Graduate Management Admission Test, and three completed recommendation forms. The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by achieving a minimum

score of 550 or 213 on the Computer-Based Test (CBT) in the Test of English as a Foreign Language (TOEFL) examination.

Applicants are responsible for arranging to take the GMAT and TOEFL and for requesting the Registrar of each college or university to mail one official transcript to the Coordinator of Graduate Business Programs.

General Requirements

The Master of Science in Information Technology Management (M.S.) consists of 33 credit hours beyond the required foundation courses. All students complete the 18 hours of core components and select 15 hours of electives that are consistent with their career interests.

I. CORE COMPONENT (18 credit hours)

ITM 731 Information Systems Management (3)

This course provides an in-depth coverage of the role of information systems in business organizations, emphasizing applications of information systems and the current issues facing their managers and users. Lectures, discussions, presentations, and student project work will seek to foster an understanding of the strategic importance of information systems, their impacts on people and organizations, the many ways they can improve the work practices within firms, and the ways they can improve a firm's products. *Note: The program director may waive ITM 731 and require an additional ITM elective for students who have successfully completed MIS 253 (Management Information Systems) or an equivalent course.*

ITM 735 Information Systems Project and Risk Management (3)

The role of systems analysis, decision analysis, and risk analysis in the project management process; managerial issues; analytical techniques of project management including CPM/PERT; budgeting processes; resource management; project control; use of project management software. P: ITM 523 or equivalent.

ITM 782 Data Base Management Systems (3)

Organizations must manage their data resource effectively in order to remain competitive. The efficient design, deployment, use and management of database systems requires an understanding of the fundamentals of database management systems, techniques for the design of databases and principles of database administration. This course emphasizes the fundamentals of database modeling, design and development, the languages and utilities provided by database management systems, and the techniques for implementing and managing database systems. Although primary emphasis will be on relational database management system, the object-oriented and distributed models will also be examined. P: ITM 731 or IC. *Note: The program director may waive ITM 731 and require an additional ITM elective for students who have successfully completed MIS 354 (Data Base Management) or an equivalent course.*

ITM 786 Telecommunications Infrastructure (3)

This course is designed to provide the student with a basic understanding of the technical and managerial aspects of business telecommunications. This course will prepare a student, by providing them with real-world examples of networking concepts, to participate in the design and planning of distributed computing services to meet the enterprise needs. P: ITM 731 or IC.

ITM 788 Information Systems Analysis and Logical Design (3)

An applied study of the process of information systems development. Lectures, discussions, readings and exercises will address the areas of information analysis, requirement determination, detailed logical design, physical design, implementation planning, computer technology and organizational behavior. Through regular deliverables associated with the cumulative project file of a running case, students will follow a widely used structured development methodology (the data flow diagramming approach) in conducting team-oriented systems analysis and design projects. P: ITM 731 and ITM 735.

MBA 773 Business and Society (2)

The world of business is viewed as the arena in which all systems of thought, values, and behavior converge. Structure and function are examined in contexts of operational, directional, and constitutional goals. Students are challenged to order these complexities into a moral frame of reference that will provide both individual and organizational guidance while contributing to social justice.

MBA 777 Practical Ethics for Business Leaders (1)

This course explores practical approaches business leaders can take for solving a current ethical issue in business. The specific issue covered can change.

MBA 778 Business, Technology and Ethics (1)

This course explores practical approaches business leaders can take for solving a current ethical issue in business. The specific issue covered can change.

II. ELECTIVES (15 credit hours required)

All students may substitute three hours of MBA, ECM, or CSC 700-level course work for one non-thesis elective course.

ITM 732 Decision Technologies (3)

This course focuses on various technologies used to support decision making in business, government, and service environments. Topics include data envelopment analysis, the Analytic Hierarchy Process, geographic information systems, and knowledge-based systems such as genetic algorithms and artificial neural networks. The conceptual basis and real-world applications of the various technologies are examined, as are software implementations of selected technologies. P: MBA 523 or equivalent.

ITM 733 Systems Integration (3)

This course will address the circumstances surrounding the reliance of most organizations on information technology products and resources from many different sources, both internal and external to the organization. The concepts and methods associated with coordinating an infrastructure of hardware, software, networks, services, and training resources will be discussed and applied. Issues concerning the preparation, distribution, and evaluation of requests for proposal (RFP), contracting and acquisition of information technology products, and managing a team of vendors and contractors, will be considered and illustrated with case studies. Exercises will offer students an insight into the complexities of such topics as outsourcing, integrating legacy systems with current applications, and managing system evolution. P: all prerequisite core courses or IC.

ITM 734 Human Factors in Information Systems (3)

Current trends in system design towards development of systems which fit in better with what humans find natural and easy to do motivate this course. The course focuses on information about human behavior, cognition, abilities and limitations, and other characteristics that are relevant to interaction with information systems. Specific strategies which apply these concepts in order to improve usability will be explored. Benefits of the incorporation of human factors into information processing systems such as less training, fewer errors, increased ability to perform complex operations, less stress, and faster work will also be discussed. Students will have the opportunity to incorporate human factor principles in an information system in order to maximize human-computer cognitive compatibility. P: Students must have completed one semester of a programming language or equivalent experience.

ITM 736 Information Technology Strategy and Policy (3)

Rapid advance information technology (IT) is leading to improvements in information handling. These advances, in turn, are leading to the rapid diffusion of IT throughout the industrialized world. The complexity of this technology and its potential for generating value is altering the nature of conducting business in many firms. It is management's responsibility to capitalize on the wide array of opportunities and to anticipate the areas of potential pitfalls this technology brings.

This course is directly concerned with the management issues surrounding IT. It presents fundamental knowledge essential to managing an information technology function successfully within a larger organization. It considers strategic and operational issues, the significance of rapidly advancing technology, and human organizational issues related to technology introduction and use. Management systems and models of successful behavior that capitalize on the opportunities and minimize the effects of the inevitable pitfalls will be presented. Furthermore, frameworks and management principles which current or aspiring managers can employ to cope with the challenges inherent to the implementation of rapidly advancing technology will also be examined.

This course views information technology from the perspective of managers at several levels – from the CIO to the first line managers. P: ITM 731 and all foundation requirements.

ITM 738 Emerging Technologies (3)

According to Moore's law, the amount of information storable in one square inch of silicon has roughly doubled yearly every year since the technology was invented. This phenomenon is causing numerous new and promising advances in information technology. Businesses capitalizing early on the adoption of some of these key technologies stand to gain significant competitive advantage. Unfortunately, organizations are in a quandary with respect to the identification, use and management of these emerging technologies. The primary focus of this course will be on the identification, acquisition, management and use of emerging technologies. P: ITM 731, ITM 782, ITM 786.

ITM 740 Data Mining Techniques for Business (3) (Same as ECM 740)

Advances in information and data capture technologies have accelerated the rate at which organizations are able to gather large volumes of data pertaining to customers, suppliers, competitors, and other entities of interest. These databases are rarely tapped for the wealth of information they may hide. The purpose of this course is to deal with the issue of extracting information and knowledge from large databases. The extracted knowledge is subsequently used to support human decision-making with respect to summarization, prediction, and the explanation of observed phenomena (e.g. patterns, trends, and customer behavior). Techniques such as visualization, statistical analysis, decision trees, and neural networks can be used to discover relationships and patterns that shed light on business problems. This course will examine methods for transforming massive amounts of data into new and useful information, uncovering factors that affect purchasing patterns, and identifying potential profitable investments and opportunities. P: MBA 526 or BUS 229.

ITM 780 Applications of Artificial Neural Networks (3)

This course will provide a survey of the theory and applications of artificial intelligence in the business decision environment, with an emphasis on artificial neural networks. Students will engage in reviews of current expository and research literature in the area and will attain hands-on experience with computer packages supporting the creation of these types of systems. Neural network design projects will be required of all students. P: Calculus and programming.

ITM 781 Computer Systems Architecture and Organization (3)

This course examines the fundamental concepts and design alternatives associated with computer architectures. The computer is regarded as a hierarchy of levels of functional complexity. Each of these levels - the digital logic level, the microprogramming level, the conventional machine level, the operating system machine level, and the assembly language level- is studied in detail. P: Calculus and computer programming.

ITM 783 Client/Server and Distributed Systems (3)

This course will provide an introduction to and an applied engagement with the increasingly popular distributed database management architectures. Emphasis will be placed on the various client/server models and network protocols, with hands-on exercises in their application. The concepts and principles underlying these models will be investigated. P: ITM 782.

ITM 784 User Interface Design for the Web (3)

Everything we used is designed by someone else. Any person who wants to design for others must develop a high degree of sensitivity of the nuances of good and bad design. This course specifically targets such nuances with respect to humans, information systems and interfaces. The human and task factors that must be considered and explicitly incorporated into user interfaces will be explored. Future trends in user interfaces will also be discussed. P: Students must have completed ITM 734 and ITM 788.

ITM 789 Seminar: Advanced Topics in Information Technology Management (3)

The content of this course will vary depending on the topic and instructor. With the permission of the instructor, the course can be repeated one time for credit, provided the course content is different. P: The prerequisites will depend on the course content. Past seminar topics include: Systems Integration, Advanced Data Mining, E-Business, and Wireless Technology and Mobile Commerce.

Projects and Thesis

ITM 790 Information Systems Practicum (3)

This practicum serves as capstone projects course for ITM students. Specially selected project teams will undertake semester-long projects for local business organizations in analysis, design, implementation, or other areas of systems development. P: 24 hours of courses completed toward the ITM degree and instructor approval of a proposal during the previous semester.

ITM 795 Independent Study and Research (3)

This course is for the study of topics that do not enjoy regular course offerings.

ITM 799 Master's Thesis (1-3)

Students wishing to pursue the thesis option for satisfaction of degree requirements are responsible for identifying an ITM faculty member who is willing to supervise the thesis. Acceptance of thesis supervision responsibility is at the sole discretion of the faculty member. Hence, the thesis option may not be available for all interested students. Prior to enrollment in the thesis course a written proposal for the thesis must be approved by a majority of the ITM program faculty. Pursuant to a defense of the thesis, the completed thesis must be approved by a majority of the ITM program faculty before a grade is assigned. Thesis students will be required to enroll in ITM 799 in two consecutive semesters, normally their final two semesters in the program. Only three of these hours may be used toward the fulfillment of elective course requirements.

Special Requirements

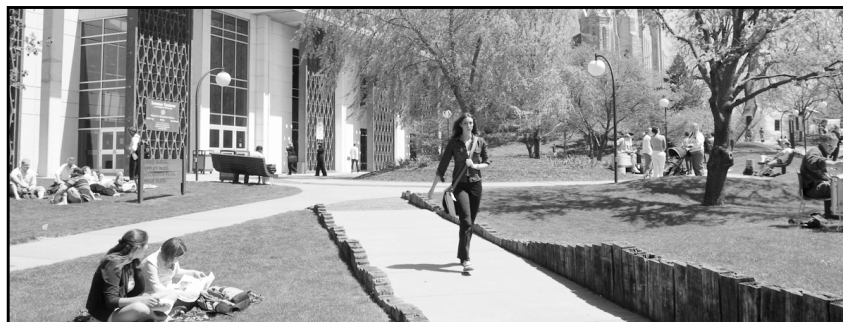
At least one-half of the foundation courses must be completed before students will be allowed to enroll in their first 700-level course. Additional 700-level courses may be taken as foundation courses are completed. Students should consult with the Coordinator of Graduate Business Programs for further information. Foundation courses can be completed using undergraduate courses or M.S. foundation courses. Enrollment in the 500-level M.S. foundation courses is limited to students who have been admitted to the M.S. program. Concurrent enrollment in graduate-level courses and foundation courses is permitted provided the necessary prerequisites have been met for the graduate-level courses.

M.S. Foundation Courses

(Open only to students enrolled in the M.S. or M.B.A. Program)

Note: Foundation courses are waived in each subject area for students who have satisfactorily completed equivalent courses prior to admission to the M.S. program. The program director may also waive these requirements if students have equivalent expertise in the area. Acceptable 500-level courses are listed or undergraduate equivalents with course descriptions may be found in the *Undergraduate Issue of the Creighton University Bulletin*.

- CSC 221 Computer Programming I (3)**
Computer organization; algorithm development; structured programming design. P: MTH 135.
- CSC 222 Computer Programming II (3)**
Further algorithm development and structured programming design; simple data structures; string processing; searching and sorting techniques. P: CSC 221.
- MBA 501 Fundamentals of Accounting (3)**
Foundation course fostering an understanding of accounting and the way it serves in developing useful information about economic organizations. Acceptable undergraduate equivalent: ACC 201.
- MBA 504 Legal Environment of Business (2)**
Law as one of the dynamics of our society and the impact on managerial action. The origins of law; the development of the English Common Law-American Constitutional System; and the organization, operation, and termination of a business within the framework of this legal system with emphasis on laws affecting business policy. Acceptable undergraduate equivalent: BUS 201.
- MBA 511 Business Financial Management (3)**
Analysis of the sources and uses of funds available to business firms, especially corporations; financial analysis; budgeting, and financial planning and control; financial aspects of circulating and fixed asset management. P: MBA 501 and MBA 541. Acceptable undergraduate equivalent: FIN 301.
- ITM 523 Management Science (3)**
This is a management science course that focuses on spreadsheet-based mathematical modeling. Topics include linear algebra, linear programming, sensitivity analysis, integer programming, and decision analysis. Real-world applications of management science in the business, government, and service sectors are examined.
- MBA 526 Statistical and Mathematical Applications in Business (3)**
Use of descriptive and inferential statistical methods and mathematical tools for the analysis of business and economic data. Topics include probability distributions, confidence intervals, tests of hypothesis, multiple regression and correlation, time series analysis, and index numbers, basic rules of differentiation, simple maximization and minimization techniques and business applications of derivatives.
- MBA 562 Fundamentals of Marketing (2)**
Managerial approach to the study of problems of marketing with emphasis on marketing strategy and development of a marketing mix. Acceptable undergraduate equivalent: MKT 319. P: ECO 203 or MBA 541,
- MBA 584 Fundamentals of Management (2)**
Introduces topics addressing the theory and methods for managing individuals and groups in business organizations. The course will focus on the four management functions of planning, organizing, coordinating, and controlling and present ideas on how managers develop their employees and motivate employee performance. The course will also include a discussion of the methods used by managers to promote the quality of work life. Acceptable undergraduate equivalent: MGT 301.



INSTITUTE FOR PRIESTLY FORMATION (IPF)

Administered by University College and Summer Sessions

Director, Rev. Richard J. Gabuzda, S.T.D

Program and Objectives

The Institute for Priestly Formation has been founded to assist in the spiritual formation of diocesan priests in the Roman Catholic Church. Working as a complement to already existing programs of seminary formation, the Institute responds to the need for a more concentrated and integrated spiritual formation. Inspired by the biblical-evangelical spirituality of Ignatius Loyola, the Institute's programs present a spirituality that can inspire, motivate, and thus sustain the busy daily lives of contemporary diocesan priests.

Each summer the Institute, in collaboration with Creighton University, conducts a ten-week residential summer program for diocesan seminarians. Seminarians may earn ten graduate credits in the course of the program. Other programs, credit and non-credit, are offered in the summer and throughout the year.

Admission to the Program

Seminarian applicants must be part of an accredited Roman Catholic seminary formation program. Participants in IPF courses are restricted to diocesan seminarians and priests with exceptions granted by the IPF director.

IPF 501 Christian Prayer and Virtue (2) S

A fundamental grounding in the church's spiritual tradition. An emphasis is placed on the prayerful understanding of interior spiritual movements and the practice of the cardinal virtues in a Christian anthropology of the human heart.

IPF 502 Christian Spirituality and Sexuality (3) S

An integrated approach to understanding and appropriating the relationship between Christian spirituality and human sexuality. An emphasis is placed upon appreciating and living priestly celibacy as a generative gift from God. The readings, lectures, and assignments present opportunities for personal integration.

IPF 503 The Spirituality of Diocesan Priesthood (2) S

After a brief treatment of how an active apostolic spirituality developed in the history of Christian spirituality, this course will focus on active apostolic spirituality as typical for diocesan priesthood, finding and serving God in the busy activity of daily life.

IPF 504 Liturgy: Foundation for Christian Living (3) S

An exploration and experience of Christian prayer known through liturgical ritual which leads to the development of attitudes and actions of conversion to the Christian life. This course helps forge a link between personal, private prayer, and the public prayer of the Church.

IPF 705 The Art of Spiritual Direction and the Identity of the Diocesan Priest (2-5) OD

An introduction to the fundamentals of the art of spiritual direction with special emphasis on the knowledge and appropriation of St. Ignatius Loyola's Rules for the Discernment of Spirits. Practice of these dynamics will be applied in the lived experience of the diocesan priest, particularly in spiritual counseling, spiritual direction, and the Sacrament of Reconciliation.

IPF 707 The Spiritual Exercises of St. Ignatius Loyola: Theory and Practice (2-5) OD

Practical experience of the Spiritual Exercises in either the individually directed silent retreat format or the retreat in daily life format. Integration of this experience includes study and reflection on the theology, structure, and application of St. Ignatius' biblical-evangelical spirituality.

IPF 793 Directed Independent Readings (1-4) S (OD)

IPF 795 Directed Independent Study (1-4) S (OD)

INTERNATIONAL RELATIONS (INR)

Professor T. Clark (Program Director); Professors Goss, R. Horning, and Wunsch; Associate Professors J. Clark, Crawford, Elliot-Meisel, J. Hoffman, Meeks, Super, Welch and Wise; Assistant Professor Calvert.

Program and Objectives

Master of Arts (M.A.) with a Major in International Relations Program

The M.A. Program is interdisciplinary, making use of the resources primarily of three departments: Economics, History, and Political Science. The program is designed to be flexible enough to meet the needs of a variety of students and to prepare them for careers in government, the military or business, or to continue on to the Ph.D.

Prerequisites for Admission

Applicants must have a baccalaureate degree from an accredited college or university, evidence of high scholastic achievement at the undergraduate level, and satisfactory Graduate Record Examination (GRE) scores. It is additionally recommended that applicants have twenty-four hours of undergraduate social science including a course in the fundamentals of economics, a survey course in history, and an introduction to political science.

The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550, or 213 on the Computer-Based Test (CBT), in the TOEFL (Test of English as a Foreign Language) examination.

Degree Requirements

There are two options available for earning the degree of Master of Arts with a Major in International Relations: the thesis and the non-thesis option. The *non-thesis option* is not recommended for those intending to continue their education beyond the Master of Arts.

THE THESIS PROGRAM (33 Hrs.)

The *thesis option* requires twenty-seven semester hours of course work, to include a core of fifteen (15) hours, twelve (12) hours of electives, and six hours of thesis work. Each student will take a comprehensive examination in two of the following four (4) fields: 1) International Politics, 2) International Economics, 3) U.S. Foreign Relations, and 4) Comparative Politics. After successful completion of examinations, students will write and successfully defend the thesis before a committee.

General Course Core: Completion of the following.

INR 790 Seminar in International Relations Research Methods

Proseminars: Completion of all of the following.

INR 538 International Trade and Finance

INR 602 Proseminar in International Politics

INR 603 Proseminar in American Diplomatic History

INR 604 Proseminar in Comparative Politics

Focus Area Electives: Completion of two electives, one within each field in which comprehensive exams will be taken.

General Electives: Completion of two electives from any field(s).

Comprehensive Exams: The student must take written exams in two of the following four fields: International Economics, International Politics, US Foreign Relations, and Comparative Politics.

Thesis: Completion of six hours of thesis work. Work will be chaired by a three-person committee.

INR 799 Thesis

THE NON-THESIS PROGRAM (36 Hrs.)

The *non-thesis option* requires thirty-six semester hours of course work, to include a core of fifteen (15) hours and twenty-one hours of electives. Following completion of course work, students will take comprehensive examinations in two fields from among the following four (4) fields: 1) International Politics, 2) International Economics, 3) U.S. Foreign Relations, and 4) Comparative Politics.

General Course Core: Completion of the following.

INR 790 Seminar in International Relations Research Methods

Proseminars: Completion of all of the following.

INR 538 International Trade and Finance

INR 602 Proseminar in International Politics

INR 603 Proseminar in American Diplomatic History

INR 604 Proseminar in Comparative Politics

Focus Area Electives: Completion of two electives, one from within each field in which comprehensive exams will be taken.

General Electives: Completion of five electives from any field(s)

Comprehensive Exams: The student must take written exams in two of the following four fields: International Economics, International Politics, US Foreign Relations, and Comparative Politics.

Master in International Relations and Master of Business Administration

Students have the opportunity to obtain a Master of Business Administration (MBA) and Master of International Relations (INR) as part of a joint degree program offered by the Graduate School at Creighton University. The program is a cooperative venture between the College of Business Administration and the College of Arts and Sciences. Both degrees can be earned in 54/57 credit hours (excluding foundation courses). Were the degrees pursued separately, 66/69 credit hours would be necessary. The specifics of the program are as follows:

1. Students must make separate application to each program and meet all admission requirements for each program.
2. Students must apply to the second program while actively enrolled in the first program (or apply to both programs simultaneously).
3. Within the 33 hour MBA program that includes 24 hours of core classes and nine hours of electives, the MBA program will accept six hours of 600 or 700 level INR course work as MBA electives.
4. Within the INR program there is a 33 hour thesis option and a 36 hour non-thesis option. Both options have 15 hours of core classes, with the thesis option having 12 hours of electives and six hours of thesis work. The non-thesis option has 15 hours of core classes and 21 hours of electives. For either option, the INR program will accept six hours of 700 level MBA course work as INR electives.
5. Only courses with a grade of B or better may be accepted from one program to the other.
6. MBA/INR students must take all MBA foundation courses in the required manner before taking 700 level MBA courses. INR students must have completed the prerequisites before enrolling in any 700 level MBA course.

7. Case based MBA courses with INR students enrolled should include international cases in the course requirements in order to meet the needs of INR students.
 8. A MBA/INR student enrolled in INR 799 must include at least one College of Business Administration faculty member on his/her committee.
- INR 508 Development of Political Economy (3) I or II (Same as ECO 508)**
Evolution of economic doctrines and analysis from biblical and Graeco-Roman origins to modern times, with an emphasis on “orthodox” or mainstream “schools” and developments and critical movements and departures therefrom. P: ECO 205 or equivalent for Graduate students.
- INR 518 Comparative Economic Systems (3) (Same as Economics 518)**
Analysis of classical models and modern variants of capitalism and socialism in light of the basic problems and principles applicable to all social economies.
- INR 528 International Economic Development (3) (Same as Economics 528)**
Contemporary theories of economic development and their relationship to the continuing problems of poverty, unemployment, income distribution, population growth, urbanization, and economic growth in the Third World.
- INR 537 International Law (3) (Same as Political Science 537)**
Contemporary states are creations of international law. Course engages the many controversies over who is subject to this law, who creates and enforces it, and how international law and international politics interact. Didactic and case-study approach, including case briefs and research presentations.
- INR 538 International Trade and Finance (3) (Same as Economics 538)**
Basic theory of inter-regional and international trade; analysis of the international economy, including the institutions, procedures and policies of world trade and finance.
- INR 540 Contemporary International Relations (3) (Same as History 540)**
The historical foundations of contemporary international relations; includes international politics, international law, and case studies drawn from Russia, India, China, Japan, Canada, Ireland, Bosnia, Kosovo, and the Middle East.
- INR 548 History of the Soviet Union: Its Formation and Fragmentation (3) (Same as History 548)**
Revolution of 1905; World War I; Revolutions of 1917; Allied intervention; Civil War; NEP, Stalin-Trotsky rivalry; Stalin and the Second Revolution; World War II; relations with Eastern Europe, Asia, and the United States; internal political, economic, and literary movements from Khrushchev and Brezhnev through Gorbachev and Yeltsin.
- INR 558 International Financial Management (3) I or II (Same as FIN 558)**
An overview of the financial issues involved in international business. Focus on the environment of international financial management, foreign exchange risk management, multinational working capital management, foreign investment analysis, financing foreign operations and international banking. P: FIN 301.
- INR 562 Foreign Relations of the United States, 1898-1945 (3) (See History 562.)**
Course will explore the domestic and international forces that have shaped United States foreign policy in the first half of the twentieth century.
- INR 563 United States in the World Affairs Since 1945 (3) (See History 563.)**
This course will explore the domestic and international forces that have shaped American foreign policy in the second half of the twentieth century.
- INR 565 United States and Canada: The Siamese Twins of North America (3) (Same as History 565)**
A phrase coined in the 1940s, are Canada and the United States still “the Siamese Twins of North America who cannot separate and live”? The U.S. and Canada are each other’s

greatest trading partner, are jointly responsible for continental security, and are fiercely committed to their own independence. But the U.S.A. invaded Canada three times, called itself the "Army of Occupation:" during World War II, and "lost" draft-dodgers to Canada during the Vietnam War. In the age of regional trading blocs and continental integration, this course will explore the relationship between the United States and Canada from the colonial period to the present. Emphasis will be on the evolution of military, diplomatic, economic, environmental, and cultural interchanges.

- INR 566 United States in the Middle East Since World War II (3)** (Same as History 565)
Survey of American foreign policy in the Middle East from World War II to the present. Topics include Truman's Containment Policy in the Middle East; Truman and Israel; the Baghdad Pact; the Suez Crisis; the Eisenhower Doctrine; the Six-Day War of 1967; the effects of the Arab-Israeli War of 1973 and the oil embargo; Camp David Accords; the Carter Doctrine; Reagan and the Middle East.
- INR 570 History of Canada (3)** (Same as History 570)
Founding of New France; Anglo-French rivalry; Canada and the American Revolution; War of 1812; evolutionary process to independence; Canadian Confederation, 1867; World War I; Statues of Westminster, 1931; World War II; Canadian-American relations, 1775-present; Trudeau Era; relationship of contemporary Quebec to the Confederation.
- INR 595 Special Problems in International Relations (3)**
Topics listed under this course are cross-listed in the Department of History, the Department of Finance and Economics, or the Department of Political Science and International Studies and are normally taught at Creighton University's main campus. Graduate students taking the course for credit are expected to present additional work. The course can be repeated for credit.
- INR 602 Proseminar in International Politics (3)**
The proseminar surveys the primary theoretical literature on international relations. Among the theoretical approaches considered are realism, neo-realism, game theory, complex interdependence, regime theory, and international political economy.
- INR 603 Proseminar in American Diplomatic History (3)** (Same as History 603)
This proseminar will explore the domestic and international forces that have shaped American foreign policy in the second half of the twentieth century, and debate current challenges facing the United States in light of the historical content.
- INR 604 Proseminar on Comparative Politics**
This proseminar explores core theories and paradigms of comparative politics, the comparative method, and classic works on key issues in comparative politics. Focus topics include statism, state-society relations, institutionalism, political change, political patterns among developing countries, politics of post-industrial states, authoritarianism, totalitarianism, and the recent emergence of democracy. Selected country case studies will also be explored as independent student projects.
- INR 690 Special Problems in Comparative Politics (3)**
This is a topics course covering issues related to comparative politics. Among the kinds of topics addressed are African politics, European politics, the European Union, Russia and its neighbors, international development policy, politics and development of the Third World, political change, civil-military relations, and comparative political philosophy. The course can be repeated for credit.
- INR 693 Special Problems in the History of International Relations (3)**
This is a topics course covering issues related to the history of international politics. Among the kinds of topics addressed are African history, Asian diplomatic history, Chinese foreign policy, Germany, European diplomatic history, modern European history, Russian diplomatic history, the United States and the Middle East, history of the modern Middle East, the United States in global politics, the history of US foreign relations, contemporary issues in Latin America, inter-American relations, and US foreign policy toward China. The course can be repeated for credit.

- INR 695 Special Problems in International Politics (3)**
This is a topics course covering issues related to international politics. Among the kinds of topics addressed are the anthropology of war, international law and organization, international political economy, conflict behavior, national security policy, world order, studies in alliance behavior, and NATO. The course can be repeated for credit.
- INR 725 Seminar in Comparative Economic Systems (3) OD (Same as ECO 725)**
Critical examination of modern variants of market-type and centrally-planned economies, commencing with a review of the basic problems and principles applicable to all socioeconomic systems, and proceeding with a study of models, cases, and selected aspects of the existing forms of socialism and capitalism. Consideration is given to the interplay of the level of economic development with related cultural, technological, and environmental factors in determining the structural, operational, and performance characteristics of politico-economic systems. Deviationist tendencies within the "isms" and the related "Convergence Hypothesis" are viewed in conclusion. P: ECO 518.
- INR 741 Managerial Economics (3) (Same as MBA 741)**
Analysis of economic information and techniques necessary and useful in business decision-making, including adaptations of economic concepts, principles, and research methods to the requirements of business managers. P: MBA 526 and 541 or equiv.
- INR 759 Seminar in Applied Economics (1-3) (Same as MBA759)**
Application of economic theory and analysis to selected problems and issues of local, regional, national and international concerns as these relate to business activity and the making of administrative decisions. The seminar can be repeated for credit with the prior approval of the program director.
- INR 770 International Business Operations (3) (Same as MBA 770)**
International Business Operations is designed to give the student an overview of the international business environment. This course emphasizes both cultural and operational aspects of international business and includes discussion of current international business topics that are significant to world economies. Current events are integrated with international business theory to give an appreciation for the complexities involved in the management of business operations across national boundaries.
- INR 779 Seminar in International Economics (3) OD (Same as ECO 779)**
Directed individual research and reports on approved topics in advanced theory, problems, and policies in international trade and finance. P: ECO 538.
- INR 790 Seminar in International Relations Research Methods (3)**
This is a required seminar focusing on strategies for writing research papers. Among the topics covered are the mechanics of research, the formulation of a research question, appropriate research designs, data selection, and qualitative and quantitative analysis.
- INR 792 Internship (3)**
In certain circumstances credit can be given for students engaged in an internship involving substantial contact with subjects related to international relations in business, IGOs, NGOs, or other political institutions. A major paper is normally required. Internships must be approved in advance by the program director. No more than three credit hours will be awarded for work related to an internship.
- INR 793 Directed Independent Readings (3)**
Students may arrange with an instructor to engage in a series of readings related to a specific topic. The topic must be approved in advance by the program director. Up to six credit hours can be awarded for work related to readings.
- INR 795 Directed Independent Study (3)**
Students preparing for comprehensive exams may arrange with an instructor to survey the relevant literature. This course can be repeated once for credit.

- INR 797 Directed Independent Research (3)**
Students may agree to engage in a research project with an instructor. Up to three credit hours may be awarded for contributing to any phase of a research project. Credit must be approved in advance by the program director. Students writing their own research paper should choose INR 798. This course can not be repeated for credit.
- INR 798 Research Paper (3)**
Students engaging in original research resulting in a publication-quality article can be awarded up to three credit hours. Credit must be approved in advance by the program director. This course can not be repeated for credit.
- INR 799 Thesis (6)**
For students pursuing the thesis option. The thesis adviser and topic must be approved in advance by the program director.

JOURNALISM AND MASS COMMUNICATION (JMC)

Associate Professor Wirth (Chair); Assistant Professor Hough; Instructor Zuegner.

Journalism and Mass Communication is not offered as a graduate major. However, the following Journalism and Mass Communication course may, with the approval of the major adviser, be included as specified in certain graduate degree programs offered by various other departments.

- JMC 529 Law of Mass Communication (3) I**
Legal limitations and privileges affecting publishing and broadcasting; libel, copyright; constitutional guarantees and restrictions on freedom of the press; the FCC, FTC, etc. P: Jr. stdg.

LIBERAL STUDIES (MLS)

Professors R. White (Program Director), Burk (Biology) Greenspoon (Klutznick Chair), M. Lawler (Theology), Murray (Philosophy), Wright (Theology), and Wunsch (Political Science); Associate Professors Aikin (Fine and Performing Arts), Evans (Political Science), Fajardo-Acosta (English), Grandbois (Social Work), Harper (Sociology), T. Kuhlman (English), Mihelich (History), Schuler (Philosophy), Simkins (Theology), and Zacharias (English); Assistant Professors Calvert (History), and Riley (Sociology).

Program and Objectives

Master of Arts in Liberal Studies

Creighton's Master of Arts in Liberal Studies (MALS) differs dramatically from other graduate programs. Its cross-disciplinary emphasis frees students from the requirements of a particular professor or discipline. The MALS Program at Creighton encourages an individual student to work with the faculty to plan and carry out a program of study based on the student's life goals, objectives, and interests. At the same time, the MALS Program is committed to building and supporting a community of learners. In addition to MALS courses, all other graduate courses at Creighton are open to MALS students.

The central theme of Creighton's MALS Program is "Understanding the World." This theme is an important point of orientation in every discussion of every MALS course.

Courses in the MALS Program are distinguished by an emphasis on intensive faculty-student and student-student work, practice in traditional and unconventional modes of scholarship, and direct experience with the elements of the course. The interdisciplinary approach, a fundamental principle of the MALS Program, affords students a rare opportunity to work with distinguished Creighton professors from various academic fields.

Admission Requirements

Three letters of recommendation, along with all undergraduate (and graduate, if applicable) transcripts are required. Non-degree-seeking students may enroll with “special student” status. The Graduate Record Examination (GRE) is not required.

Program Requirements

I. Foundational Seminar, MLS 601 Understanding the World (3 credits)

This seminar explores some of the ways humans approach meaning for themselves and understand the world in which they live. Seminar participants explore meaning within intuitive, rational, and empirical perspectives.

II. Elective Courses (27 credits)

A range of elective courses enables MALS students to achieve a rich interdisciplinary education. MALS students must complete nine elective graduate courses taken from a broad spectrum of disciplines, including art history, classics, history, world literature, natural sciences, philosophy, political science, psychology, sociology, religion and theology. Of the nine elective courses (27 credits), at least four must be MLS courses. The balance of this requirement may be fulfilled with courses selected in consultation with a MALS advisor from other graduate courses offered at Creighton University. Students may include up to 6 credits of work from a combination of approved graduate work at another university or 500-level course work at Creighton.

III. Directed Independent Research (3 credits)

MALS students will demonstrate proficiency in a directed independent research project on a topic to be selected by the student in consultation with a faculty advisor. A student will register for and begin the directed independent research after the completion of 27 credit hours in the MALS program. The project will culminate in a written report and evaluation of the research.

IV. Final Project (3 credits)

Following completion of all coursework, MALS students will undertake a final project. This project, which should build upon the Directed Independent Research, provides students with an opportunity to apply the knowledge and skills gained through the Program to an independent activity of the student's design. The Final Project may take the form of academic research, applied research, or creative work. In all cases, a written analysis is necessary to fulfill the degree requirements. A final interview with a faculty committee, consisting of the Program Director and two faculty members, will conclude the project and the MALS Program.

MLS 601 Understanding the World (3)

This seminar will explore some of the many ways humans approach meaning for themselves and understand the world in which they live. Seminar participants will explore meaning within intuitive, rational and empirical perspectives.

MLS 610 Is the Christian Life Heroic? (3)

From Gibbon through Nietzsche, an influential modern tradition of thought has interpreted Christian morality as an unfortunate devolution from the excellencies of the singular hero of antiquity to the mediocrity and complacency of the many faithful. The goal of this course is to understand the force of this criticism and to formulate a response by asking in what sense the Christian life might be heroic. Readings include exposure to accounts of heroic virtue in antiquity, articulations of Christian heroism in early Christianity, medieval and early modern literary attempts to Christian expression to classical themes of martial virtue, and modern treatments of the heroism of discipleship.

- MLS 613 Cultures in Conflict: Christians, Muslims, and Jews in the Age of Discovery (3)**
1492 signaled a clash not only of the New World and the Old, but also of Christendom and Islam, of Europe and the rest of the world. In the same year that Columbus set sail across the Atlantic, the Spanish monarchy captured Granada, the last Muslim stronghold on the peninsula, and also expelled the Jews. This course will draw upon these events to explore the nature of the relations between Christians and Muslims, and between both and the Jews, during the Age of Discovery.
- MLS 615 Imagining the World: The Human Imagination in Theory and Practice (3)**
This course will explore the human imagination from both the theoretical and practical perspectives. On the one hand, it will consider theories of the imagination from a variety of disciplines (theology, philosophy, the arts, psychology). On the other hand, it will include the study and introductory practice of disciplines designed to hone imaginative capability (prayer, meditation, artistic disciplines, reading, physical disciplines). Students and instructor will reflect together upon questions that emerge from this study, e.g. the role of imagination in personal and public life, the honing of the imagination as an essential discipline of peacemaking, the imaginary life and pedagogical practice, learning to imagine “correctly” as a dimension of socialization.
- MLS 618 Apocalypse and the End of the World (3)**
Apocalypses and visions of the end of the world arise from a clash between cultural values and social realities. They are an attempt to construct a meaningful world in the midst of chaos. This course will explore the social environment of apocalypses and apocalyptic movements, both ancient and modern; the cultural values embedded in these visions will be highlighted; and the value of apocalypses for world–construction will be examined.
- MLS 620 The West of the Imagination (3)**
A multi–disciplinary investigation of the American West and its impact on the American consciousness studied through geography, politics, history, art, architecture, music, film, literature and theater. The course will consider such topics as the idea of the frontier, Native Americans, economics and politics, and the persistence of the myth of the west in modern America.
- MLS 622 Issues in Public Policy. (3)**
This course examines issues associated with the creation and implementation of public policy. Students will research a public policy in their own work area (e.g. environment, education, law, medicine, social welfare). They will examine assumptions of the knowledge base used in the creation of the policy and the justice concerns the policy attempts to resolve.
- MLS 624 Contemporary Ireland (3)**
Literary, historical and artistic perspectives on contemporary Ireland.
- MLS 625 The Changing American Family. (3)**
Families and households are rapidly changing in America in relation to changes in other institutions (the economy, the state, educational systems). Evidence is accumulating that many changes are dysfunctional. This course will consider the question: Can families be adapted, reconsidered, or reconstituted to make them better structure for habitation, support, social accounting, and the positive socialization of children?
- MLS 627 Love and Sexuality (3)**
What is love? What is the relationship between love and beauty? Is love only the sublimation of sexuality? And how is romantic love related to friendship or the mystic’s love of God? This course will examine love and sex from a variety of different perspectives, using philosophy, literature, psychology and films to make sense of these basic human experiences.
- MLS 628 The Two Sexes (3)**
On gender construction in contemporary culture.

- MLS 630 The Moral Animal (3)**
 Since Charles Darwin, evolutionary biologists have pondered the extent to which human behavior reflects our evolutionary ancestry. This topic has currently been actively revived under the titles of ‘human sociobiology’ and ‘evolutionary psychology.’ This course would examine the writings of the human sociobiologists, evolutionary psychologists, and their critics, to evaluate whether such a thing as an evolved ‘human nature’ exists, and if so whether it provides only a very general framework for understanding broad patterns in the behavior of modern people or whether it can go beyond that to provide a more detailed understanding of humans’ everyday actions.
- MSL 633 The Civil War and American Culture (3)**
 Using the works of authors including Ralph Waldo Emerson, Frederick Douglass, Theodore Dreiser, William Dean Howells, Charles Chesnutt, Henry Adams, Henry James and others in the context of American literary conventions of writing and reading, this course traces pre- and post-war tensions in the United States which are represented and re-presented through the implicit and explicit literary dialogue contained in the course texts.
- MLS 635 Feminist Ideals and Revisioning Justice (3)**
 Justice is usually identified with distribution: are rights, resources, and opportunities distributed fairly throughout society? This course considers how feminist writings pursue a broader understanding of justice, oppression, and human interdependence. We will attend to both feminist theories, the social movements that seek to embody these ideals, and social questions, such as affirmative action, as reformulated within this border notion of justice. One feature of feminist thinking is the effort to integrate personal reflection and transformation with political analysis. How the personal is (and is not) political will be one topic raised in the course. The course will draw from classic texts from the history of feminism, contemporary readings on how gender interacts with race and class, as well as literature and film.
- MLS 636 Modern Times (3)**
 This course will examine the ideas which have been most central in shaping the modern western world, including liberalism, capitalism and individuality, positivism, secularism and the discourse of human rights.
- MLS 637 Fable Literature (3)**
 An intense, comparative and imaginative experience of one of the Western world’s most stimulating literary forms, the fable.
- MLS 638 Philosophy and Literature (3)**
 This course will examine select writings in literature and philosophy in the Western tradition, primarily from the 19th and 20th centuries. The goal is to illustrate the possibilities for interrelating values, modes of perception and learning which are represented in these traditions.
- MLS 640 The Development of the Western Hero from Antiquity to Renaissance (3)**
 Our quarry will be the hero as literary figure and as a religious figure. This course will study the hero as he is represented in various literary genres, from the ‘epic hero’ to the ‘tragic’ to the ‘philosophic hero’ to the ‘anti-hero’ and beyond; and the course will give attention to how these representations develop from each other and change. The course will also examine the nature of the Greek hero-cult and the Christian cult of the saints. The hero’s relations to the gods (or God) and to the city will be studied, as well as to the cultural constructs of masculinity in Greece, Rome, the Christian West, and our present society. The course will take frequent looks at the evolution and adaptation of the hero from the Renaissance down to our own day (especially as represented in our modern films).
- MLS 642 Nature and Morality (3)**
 Reflections on nature as significant for morality began in ancient times and has continued to the present day—especially in the moral teaching of the Catholic Church. This course will study both classical sources (especially St. Thomas Aquinas, and current issues and applications, as these are discussed Pope John Paul II and a range of philosophers and theologians.

- MSL 645 Twentieth-century American Identity and the Nineteenth-century American Novel (3)**
 This course investigates the cultural and literary bases of American literary Realism and the ways in which it contains and represents aspects of the way many Americans understand themselves today. In addition to literary study, the course will investigate links between traditional historical study and literature, and between literature and contemporary historicism and cultural materialism as ways of understanding the relation of literature to its contemporary time and place.
- MLS 647 Reflections on Commercial Life (3)**
 We live in a society so deeply commercial that we take commercial forms for granted, much as we do grammatical forms: we live through them rather than reflecting on them. This course will consider how markets, money, private property, capital, and wage labor all shape our world. A variety of acute commentators on commercial societies (e.g., Plato, Aristotle, Aquinas, Locke, Smith, Hegel, Marx, Veblen, and Weber) will be studied with an eye toward their relevance for contemporary commercial life.
- MLS 650 The 1960's in American Theatre (3)**
 Why do the 1960's continue to conjure up such vivid images and emotions for us? How is this decade portrayed on stage and film? This course will look at the theatre of the 1960's, and the impact of the cultural revolution of that period on the theatre today. We will look at the work of such playwrights as Albee, Crowley, Patrick, Rabe, and Wilson and their interpretation of this turbulent time period.
- MLS 651 On Being Native Americans (3)**
 This course examines indigenous nations and peoples from historical, social, cultural, philosophical, economic and political perspectives.
- MLS 653 Expressionism and the American Theatre (3)**
 This course will study the influences of European ideas and techniques on American theatre in the 1930's and 40's. With a special look at German Expressionism, we will see influences on American playwrights such as O'Neill, Rice, Williams, and on scenic designers such as Bel Geddes, Jones, and Mielziner.
- MLS 655 Political Classics and Contemporary Controversies (3)**
 The classics of political thought—Plato, Aristotle, Machiavelli, and Hobbes, for example—raise issues that reverberate with our most contemporary controversies about democracy, leadership, the family and the relations between the sexes, the economy, and individual freedom and the bonds of community. This course offers a glimpse of some of the 'classics,' and pairs each with contemporary public issues in order to demonstrate the perpetual recurrence of our deepest public concerns.
- MLS 658 Church and State in American Public Life (3)**
 The separation of church and state is one of America's greatest 'inventions,' but some critics complain that we have separated not only church and state, but religion and public life—leaving us with 'a naked public square.' Beginning with the ways which courts have understood the constitutional guarantees of religious freedom, this course examines the multiple relationship between religious faiths and institutions and American politics and culture, assessing contemporary arguments concerning the proper role of religion in public life.
- MLS 660 Cities and America (3)**
 This seminar will study the development of American cities and their political, social, economic and cultural institutions. The city of Omaha will be used as our "laboratory."
- MLS 662 Omaha: History by Design (3)**
 A study of the architectural history of Omaha and what it can tell us about the peoples and institutions of the metropolitan area, their past, present and probable future.
- MLS 666 Multiculturalism: Theory and Practise (3)**
 In this course we will use literature, philosophical works and films to consider the challenge of multiculturalism in contemporary life.

- MLS 670 The Civil Rights Movement: Perspectives from History, Law, and Politics (3)**
 The civil rights movement has faded into history, and a whole generation of Americans can no longer remember what was one of the defining periods of American Public life. This course attempts to recapture and preserve the story of the ‘civil rights period,’ using biographies, narratives, law cases, and documentary films to help recall where we have been so that we can understand where we are.
- MLS 672 Text and Context: A Study of the Bible in Transmission and in Translation (3)**
 The Bible, both Old Testament (or Hebrew Bible) and New Testament, has been transmitted (that is, copied in original languages) and translated (into other languages) more than any other document from antiquity. This course will focus on the social, political, historical, religious, even technological circumstances in which this activity has been conducted for more than two millennia, exploring how the texts reflect both the contexts of the copyists and translators own society and their understanding of the sacred texts with which they worked.
- MLS 675 Economics in Literature (3)**
 This course features the study of the relations between literature and economics in the context of the representation of economic phenomena in selected literary works. It will seek to establish the idea that literary texts often offer important normative and prescriptive judgments connected to economic theory and practice. By reading writers from diverse cultures and historical periods, this course will explore the concern with the nature and results of unbridled greed, exploitative practices, and selfish materialism, focusing specifically on issues of poverty, inequalities of income distribution, overconsumption and depletion of natural resources, competition and conflict, and the long–run stability of given forms of socioeconomic organization. The course will also consider questions such as the necessary role of values and ethical concerns in economic theory and policy–making; the role of education and incentives in the functioning of economic systems; and the possibilities of conflict between technical and human, public and private, as well as environmental and human interests.
- MLS 677 The Hero and Fate in Epic Tradition (3)**
 This course features the thematic study of the heroic figure and the concept of fate in works ranging from ancient and classical epics to modern novels and films. Exploring the literary, philosophical, religious, and ethical underpinnings of epic narratives, the course will examine works such as the *Epic of Gilgamesh*, Homer’s *Iliad and Odyssey*, Virgil’s *Aeneid*, *Beowulf*, Dante’s *Commedia*, Cervantes’ *Don Quixote*, William Faulkner’s *As I Lay Dying*, and Akira Kurosawa’s *Kagemusha*. Important concerns of this course are the assessment and characterization, in epic narratives, of the representation of free will and determinism; outcomes and consequences of human actions; personal responsibility; moral issues and ethical dimensions of heroic activity and decision–making; and the presence and activity of larger forces limiting, shaping, and responding to human choices.
- MLS 680 Development and Change in the Third World (3)**
 In the post–colonial era, some one hundred states became independent and struggled with problems of state building, nation building, and economic development. What strategies have they pursued, and with what results? What are the major themes which purport to explain their relative performance? What are the obstacles facing “nation–building”? What are the strengths and weaknesses of these states in their developmental, administrative, and nation–building roles? What has been the role played by the international organizations such as the multi–national corporation, the World Bank, U.S. Foreign Aid, etc.? This course will consider these issues along with selected state case studies.
- MLS 683 Ethnic Conflict, Nationalism, and Democracy (3)**
 Throughout the world, ethnicity and nationalism seem to have become perhaps the paramount political forces. In Africa, in Central Europe, in India, in the former Soviet Union, these forces have brought many people to (or near to) civil war or inter–state war. Simultaneously, the past 20 years have witnessed a vast expansion of democracy. What accounts for these parallel and explosive forces? Are they related? How can they be managed? What might lie ahead? This course will explore recent history and major authors on these issues.

MLS 795 Directed Independent Research (3)

MLS 797 Directed Independent Study (3)

MLS 799 Final Program Project (3)

MATHEMATICS (MTH)

Professor Cheng (Chair); Professors Malik and Mordeson; Associate Professors J. Carlson, Fong, Nair, and Wierman; Assistant Professors Crist (Director of Graduate Studies), Nielsen, and Reed.

Program and Objectives

Master of Science (M.S.) Program

The graduate program in mathematics is designed primarily for students with a bachelor's degree in mathematics. The program consists of applied mathematics, operations research, computer science, and statistics. In order to accommodate students with full-time jobs, the courses making up the program are offered evenings. Courses are offered frequently enough to allow students to graduate in two years.

Program Requirements

For program entry, a bachelor's degree with a major in mathematics is ordinarily expected. A combined score of 1,000 on the Graduate Record Examination will normally be required for acceptance into the program as will a grade-point average of 3.00. The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550 or 213 on the Computer-Based Test (CBT) in the TOEFL (Test of English as a Foreign Language) examination. Students will be allowed freedom to choose their own area of concentration and adviser. A *Master of Science* degree is offered with a thesis (Plan A) and without a thesis (Plan B). Thirty semester hours of graduate mathematics courses are required with the thesis and thirty-three semester hours without a thesis. Regardless of plan, all graduate students in mathematics are required to include twenty-one semester hours of 600- or 700-level courses. Departmental permission must be received for students to take 500-level mathematics or statistics courses. All degree candidates must pass a written comprehensive examination. In addition to the above requirements, graduate students are asked to follow one of these model plans of study:

- (1) Applied Mathematics: three courses selected from the following (with a grade of B or higher): MTH 623, 635, 643, 651, 683; supporting courses: three graduate mathematics courses and other graduate courses from mathematics, statistics or computer science.
- (2) Engineering Mathematics: MTH 691, 693, 695, 697; support courses: three graduate mathematics courses and other graduate courses from mathematics, statistics or computer science.
- (3) Operations Research: three courses selected from the following (with a grade of B or higher): MTH 653, 671, 672, 675, 685; supporting courses: other graduate courses from mathematics, statistics or computer science.
- (4) Statistics: four courses selected from the following (with a grade of B or higher): STA 625, 663, 667, 675, 683; supporting courses: other graduate courses from mathematics, statistics or computer science.
- (5) Computer Science: three courses selected from the following (with a grade of B or higher): MTH 623, 635, 643, 671, 683, STA 667, STA 675; supporting courses: four graduate level computer science courses and other graduate courses from mathematics, statistics or computer science.

Plans (1), (2) and (3) must include a total of twenty-one semester hours of 600- or 700-level mathematics courses. Plan (4) must include twelve credit hours of 600- or 700-level mathematics courses.

Computer Science 503, 507, 509, 511, 523, and 543 may not be taken for graduate credit in plan (4).

- MTH 509 Discrete Structures (3) I** (Same as CSC 509)
Logic; Boolean algebra; switching circuits; graphs; groups; semi-groups; finite state machines; coding theory; grammars; algorithms. P: CSC 221; 6 hrs. college MTH.
- MTH 521 Euclidean and Non-Euclidean Geometry (3) II**
Basic geometric concepts and applications. P: MTH 246.
- MTH 525 Automata, Computability, and Formal Languages (3) II, AY** (Same as CSC 525)
Finite state concepts; acceptors; formal grammars; computability; Turing machines. P: MTH 509.
- MTH 529 Linear Algebra (3) II**
Vector spaces and subspaces; linear transformations; matrixes, eigenvalues and eigenvectors. P: MTH 246.
- MTH 543 Numerical Analysis (3) II**
Numerical differentiation and integration; solutions of equations and systems of equations; polynomial approximation; error analysis and eigenvectors; applications to digital computers. P: MTH 246.
- MTH 545 Differential Equations (3) I**
n-th order linear differential equations; nonlinear differential equations; series solutions; Laplace transforms. P: MTH 246.
- MTH 559 Topology (3) OD**
Set theory; metric space; topological spaces; connectedness; compactness; selected related topics. P: MTH 246.
- MTH 561 Mathematical Statistics I (3) I** (Same as STA 561)
Introduction to probability and probability distributions including techniques for finding expected values and variance of discrete and continuous variables. These distributions and their properties are examined to establish their application to applied statistical methods. P: MTH 246.
- MTH 562 Mathematical Statistics II (3) II** (Same as STA 562)
Using probability distributions as a foundation and random sampling, methods for estimating distribution parameters are developed with applications to hypothesis testing. The course also includes an introduction to linear models, regression analysis, analysis of variance and design of experiments. P: MTH 561.
- MTH 563 Mathematical Statistics III (3) OD** (Same as STA 563)
Optimal decision procedures, further normal distribution theory, noncentral chi-square and F distributions, introduction to the theoretical basis for analysis of variance, non-parametric methods. P: MTH 562.
- MTH 571 Linear Programming (3) II** (Same as STA 571)
Introductory course in operations research. Linear models and solutions using the simplex method, duality theory and sensitivity analysis. P: MTH 523 or 529.
- MTH 573 Probabilistic Models (3) II AY** (Same as STA 573)
Queuing theory, inventory theory, Markov processes, simulation and nonlinear programming. P: MTH 561.
- MTH 575 Introductory Stochastic Processes (3) II AY** (Same as STA 575)
Random walk, normal processes and covariance stationary processes, counting processes and Poisson processes, renewal counting processes, discrete and continuous parameter Markov chains. P: MTH 561.

- MTH 581 Modern Algebra I (3) I**
Groups, rings; fields; applications to coding theory. P: MTH 246.
- MTH 582 Modern Algebra II (3) II**
Rings; ideals; field extensions; Galois theory; applications to coding theory. P: MTH 581.
- MTH 583 Fuzzy Set Theory (3) II**
Crisp sets; fuzzy sets; classical logic; fuzzy logic; fuzzy complement; fuzzy union; fuzzy intersection; crisp and fuzzy relations; similarity relations; compatibility relations; orderings; morphisms; fuzzy relational equations. P: MTH 246.
- MTH 591 Analysis I (3) I**
Properties of Euclidean spaces and their applications to functions. P: MTH 246.
- MTH 592 Analysis II (3) II**
Continuation of MTH 591; functions in metric space. P: MTH 591.
- MTH 599 Seminar (1-3) OD**
Algebraic geometry; applications to robotics; fuzzy mathematics. P: MTH 581.
- MTH 623 Numerical Analysis: Linear (3) IAY (Same as CSC 623)**
Linear systems of equations; Gaussian elimination; error analysis and norms; Jacobi's method; Gauss-Sidel method; overrelaxation; computation of eigenvalues and eigenvector; Householder's method.
- MTH 635 Coding Theory (3) I, 1995-96, AY (Same as CSC 635)**
Weight, minimum weight; maximum-likelihood decoding; syndrome decoding; perfect codes; Hamming codes; sphere-packing bound; self-dual codes; Golay codes; B.C.H. code; cyclic codes.
- MTH 643 Numerical Analysis: Nonlinear (3) OD (Same as CSC 643)**
Numerical differentiation and integration; solutions of equations and systems of equations; polynomial approximations; error analysis and eigenvector, applications to digital computers. P: MTH 246.
- MTH 651 Partial Differentiation Equations With Applications (3) OD**
Parabolic, hyperbolic and elliptic partial differential equations (PDEs) are introduced using physical examples; analytic solution of PDEs; techniques of Fourier analysis; numerical methods for solving PDEs with computers.
- MTH 653 Reliability Theory (3) I, OD (Same as STA 653)**
Structured properties of coherent systems; reliability of coherent systems; classes of life distributions based on notions of aging; maintenance and replacement models; models; limiting distributions of coherent systems life.
- MTH 657 Matrix Theory (3) OD**
Matrix algebra; determinant theory; Jordan Canonical form; functions of matrices; inner product; normal matrix; unitary matrix; positive definite matrix; non-negative matrices; stochastic matrices; generalized inverses.
- MTH 663 Applied Time Series Analysis (3) OD (Same as STA 663)**
Stochastic processes; auto-covariance functions; estimation in auto regressive and moving average processes, the spectrum; spectral estimator. P: MTH 562 or equiv.
- MTH 669 Functional Analysis (3) OD**
Normed linear spaces; Banach spaces; inner product spaces; Hilbert spaces; spectral theory.
- MTH 671 Operations Research I (3) IAY**
Linear programming; simplex method; duality; transportation problem; goal programming; network analysis; dynamic programming; game theory.
- MTH 672 Operations Research II (3) IIAY**
Probability theory; queueing theory; inventory theory; Markovian decision processes; reliability; decision analysis; simulation; integer programming, nonlinear programming.

- MTH 675 Stochastic Processes (3) II, AY (Same as STA 675)**
Normal processes; covariance stationary processes; counting processes; Poisson processes; renewal counting processes; Markov chains. P: MTH 562 or equiv.
- MTH 683 Fuzzy Mathematics (3) I, 1994-95 (Same as CSC 683)**
Crisp sets; fuzzy sets; classical logic; fuzzy logic; operations of fuzzy sets; fuzzy relations; fuzzy measures; uncertainty and information; application to management and decision making; computer science; systems science.
- MTH 685 Control Theory (3) I, 1995-96**
Structural properties of linear systems; structural properties of nonlinear systems; optimal control; infinite dimensional systems.
- MTH 691 Nonlinear Elasticity (3) I, 1994-95**
Introductory material covers the general theory of elasticity, including strain-displacement equations, stress-strain laws, and linear theory (i.e., Hook's Law). Other topics include nonlinear integro-differential equations used to model the behavior of strings and beams (Fopple Theory, Von Karman assumptions), circular membranes, and the buckling of plates.
- MTH 693 Fluid Mechanics (3) S 1994**
Introductory material will cover the general theory of fluid mechanics, including the Navier-Stokes equations; vorticity; the Bernoulli equation; potential theory and conformal mapping. Other topics include flow past circular cylinders, spheres, airfoils, and bubbles; inverse methods and numerical methods.
- MTH 695 Hyperbolic Conservation Laws (3)**
Basic theory of hyperbolic conservation laws-examples from gas dynamics. Formation, propagation and interaction of shock waves and rarefaction waves, and the numerical methods used to model them.
- MTH 697 Methods of Applied Mathematics (3)**
Course covers several topics used extensively in applied mathematics. Topics will be drawn from, but not limited to, the following: (a) the theory of complex functions, including contour integrals (calculus of residues), (b) asymptotic expansion, (c) regular and singular perturbation theory.
- MTH 701 Advanced Topics in Operations Research (3) OD**
Topics from operations research. P: MTH 671.
- MTH 703 Advanced Topics in Operations Research (3) OD**
Graph theory; abstract algebra.
- MTH 781 Abstract Algebra I (3) OD**
Equivalence relations; monoids and groups; quotient groups; homomorphisms; rings; field of fractions; polynomials; modules.
- MTH 782 Abstract Algebra II (3) OD**
Galois theory, splitting field, finite fields, real polynomial equations and inequalities; elimination procedure; resultants. P: MTH 781.
- MTH 791 Real Analysis I (1) OD**
Set theory; real number system; Lebesgue measure; Lebesgue integral; differentiation and integration; classical Banach spaces.
- MTH 792 Real Analysis II (3) OD**
Metric spaces; topological spaces; compact spaces; general Banach spaces; general measure and integral; Daniell integral.
- MTH 793 Directed Independent Readings (3) OD**
MTH 795 Directed Independent Study (3) OD
MTH 797 Directed Independent Research (3) OD
MTH 799 Master's Thesis (3) OD

MEDICAL MICROBIOLOGY AND IMMUNOLOGY (MIC)

Primary Faculty: *Professors* Nairn (Chair), Dworzack, Goering, Knoop, Nielsen, Preheim; *Associate Professors*; Bittner, Chaperon, Gorby, Lister, Thomson; *Assistant Professors*; Bessen, Drescher, Giger, Hanson, Swanson; *Professor Emeritus*; Ferraro, Severin, C. Sanders, E. Sanders.

Secondary Faculty: *Professors* Agrawal, Townley; *Associate Professors*; Cavalieri, Destache, Horowitz, Jung, Romero; *Assistant Professor* Chatterjee.

Contributed Services Faculty: *Clinical Professor*; Gendelman; *Associate Clinical Professors*; Rupp, Smith; *Assistant Clinical Professors*; Fey, Penn.

Doctor of Philosophy (Ph.D.) Program

The objective of the program is to prepare highly qualified students for a broad range of possible careers in research and teaching in medical microbiology and immunology and related health science fields. Study for the Ph.D. degree emphasizes independence in scientific pursuit, with a particular emphasis on research. Course work and dissertation research are designed to bring the student to a high-level of competence in microbiology and immunology with particular expertise in the area chosen for dissertation research. You will be expected to demonstrate a high capacity for original and independent thought, and apply this creativity, educational background, and knowledge of the scientific method to dissertation research.

Master of Science (M.S.) Program

The objectives of the program include preparation of the student for one or more of the following careers: (1) teaching of Medical Microbiology and Immunology at the undergraduate level, and (2) participation in supervised or team research in universities, industry or government. In addition, the program will prepare outstanding students for pursuit of the Ph.D. degree. Study for the Master's degree emphasizes a combination of course work and laboratory experience to familiarize you with microbiology and immunology and to educate you in the scientific method. It can be a time when you identify a primary interest in microbiology and immunology, or a time when you first become introduced to the fields of microbiology and immunology

Prerequisites for Admission

The student's academic record and performance will be a major factor in acceptance. The undergraduate curriculum must include fundamental courses in both the biological and chemical sciences. For doctoral students, a strong foundation in undergraduate microbiology, immunology, molecular biology and biochemistry are desired. However, lack of advanced courses in some of these areas will not necessarily preclude consideration for admission into the doctoral program. The applicant is required to submit results from the Graduate Record Exam (GRE) prior to admission. A minimum score of 1500 is required. The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550 paper-based test or a score of 213 computer-based test in the TOEFL (Test of English as a Foreign Language) examination.

General Requirements

The minimum curriculum required for the M.S. degree is thirty (30) semester hours, including formal core coursework and thesis research. For the Ph.D., an additional sixty (60) semester hours are required. Students entering the Ph.D. program having already obtained their M.S. degree may have a maximum of 30 credit hours transferred to the program.

- MIC 541 Medical Microbiology and Immunology (4) I**
Introduction to the field of medical microbiology, focusing on the importance of immunological defenses, bacterial genetics and physiology, bacterial infections, antibacterial chemotherapy, virology, mycology, parasitology, and other related topics associated with infectious diseases in humans. R, L.P: Second year Pharm.D. student or degree seeking graduate student. Upper level undergraduate or other students require approval from course director.
- MIC 543 Essentials of Immunology (3) II**
Lecture course covering the major areas of contemporary immunology including host resistance to infection, the chemistry of antigens and physiology of the immune system, immunogenetics and transplantation immunology, immunological techniques, tumor immunology, and immunopathology. 3 R&L. P: MIC 141 or IC.
- MIC 617 Molecular Biology (3) II**
Contemporary concepts and techniques in molecular biology including gene structure, coding, regulation, protein synthesis, mutation, recombination, recombinant DNA technology and transposable elements. P: BIO 212 or MIC 615 or IC.
- MIC 619 Molecular Biology Laboratory (2) II**
Demonstration of laboratory techniques related to molecular biology. P or CO: MIC 617.
- MIC 727 Methods in Medical Microbiology and Immunology (2) I, AY**
Study of modern methods and instrumentation used in medical microbiology and immunology. Laboratories and group discussions will cover topics such as assays of bacteria, viruses, bacterial and viral components, bioactive products, etc. In addition, methods of nucleic acid and protein analysis, electron microscopy, and enzymatic analysis will also be discussed.
- MIC 733 Advanced Bacterial Pathogenesis (3) II, AY**
Lectures, seminars, literature review, and group discussion concerning mechanisms by which microorganisms produce disease. P: MIC 615 or IC.
- MIC 735 Diagnostic Microbiology (4) II, AY**
Laboratory and conferences which deal with selection of clinical specimens for diagnosis, isolation of pathogenic microorganisms and preparation of media for their growth. 4 R. L arr. P: IC.
- MIC 737 Recent Developments in Immunopharmacology (3) I, II**
The antigen-antibody reaction with its effects on the mast cell, the release of chemical mediators, and the effect of these mediators on various tissue functions both *in vivo* and *in vitro*. The various therapeutic agents and mechanisms that influence these reactions. P: IC.
- MIC 739 Bacterial Physiology (3) I, AY**
Study of molecular, cellular, and genetic processes in bacteria. Includes molecular structure and function, cell division, synthesis of macromolecules, and metabolism.
- MIC 745 Cellular and Molecular Immunology (3) II**
This course will focus on the basic and clinical aspects of cellular and molecular immunology. 2 R&L arr. P: MIC 543 or IC.
- MIC 746 Advanced Immunology (3) I, AY**
Lectures and conferences providing a coordinated and detailed account of current immunology at an advanced level. Students will be expected to familiarize themselves with the original literature, and emphasis will be given to the more rapidly progressing areas. 3 R&L arr. P: MIC 543 or IC.

- MIC 747 Cellular and Molecular Mechanisms of Transmembrane Signaling (3) II**
Detailed analysis of how an external signal is transduced into a cell language resulting in a response. Intracellular pathways involved in signal transduction will be examined. Discussions on various cell proteins and cross-talk among intracellular signal transduction pathways. P: MIC 617 or IC.
- MIC 749 Molecular Virology (3) I, AY**
Study of the physical, chemical, and biological properties of viruses. Selected topics will include such areas of investigation as cultivation and identification, replication, host-virus interactions, interference, and viral oncogenesis. P: MIC 615 or IC.
- MIC 750 Advanced Viral Pathogenesis (3) II, AY**
Lectures, literature review, presentations and group discussion concerning mechanisms by which viruses cause disease.
- MIC 751 Epidemiology and Public Health (3) II, AY**
Study of infectious diseases in population and methods of control including microbiology of food and water. P: IC.
- MIC 753 Advanced Antimicrobial Agents and Chemotherapy (3) I, AY**
Chemistry, pharmacology, and biology of antibiotic substances and their use in therapy of infectious diseases. P: MIC 615 or IC.
- MIC 754 Clinical Infectious Disease (1-4) I, II, S**
Clinical, diagnostic and pathogenic aspects of infectious diseases taught in the hospital setting. Students participate in ward rounds, seminars, discussions and lectures. Problem-solving techniques involving use of clinical and laboratory evidence. P: IC.
- MIC 791 Department Seminar and Teaching (1) I, II**
The student is required to register each semester of his/her residence. The maximum credit applicable toward a degree is two for the M.S.; six for the Ph.D.
- MIC 793 Directed Independent Readings: Selected Topics in Medical Microbiology and Immunology (1-4) I, II, S**
Conferences and reading assignments providing an opportunity for in-depth study of recent developments and associate problems in carefully selected and highly specialized areas of medical microbiology.
- MIC 797 Directed Independent Research (1-6) I, II, S**
Investigative work on selected subject. (Non-thesis research optional). L&R arr.
- MIC 799 Master's Thesis (1-6) I, II, S**
Research, under departmental supervision, in connection with the preparation of the Master's thesis. Student must register for this course in any term when engaged in formal preparation of the Master's thesis; however, six credit hours are the maximum applicable toward the degree.
- MIC 893 Directed Independent Readings: Selected Advanced Topics in Medical Microbiology and Immunology (1-4) I, II, S**
Advanced investigative work on a selected subject. L&R arr. P: DC.
- MIC 897 Directed Independent Research (1-6) I, II, S**
Investigative work on a selected subject.
- MIC 899 Doctoral Dissertation (1-6) I, II, S**
Research, under departmental supervision, in connection with the preparation of the doctoral dissertation. Student must register for this course in any term when engaged in formal preparation of the doctoral dissertation; however, twenty credit hours are the maximum applicable toward the degree.

MODERN LANGUAGES AND LITERATURES

Associate Professor Coffey (Chair); Associate Professors Recio, Rodrigo, and Romero-Downing; Assistant Professors Böhlke, Evers, Gibbs, Hoy, Santiago-Stommes, Vanचना, and Vanderboegh.

Modern Languages are not offered as graduate majors. However, the following Modern Language courses may, with the approval of the major adviser, be included as specified in certain graduate degree programs offered by various other departments.

Prerequisites for Graduate Study with French, German, or Spanish as a minor in Plan B Programs

An undergraduate minor or equivalent in French, German, or Spanish.

Teacher certification: Students who intend to teach languages should consult with the Education Department and with the appropriate agency in the state in which they intend to teach.

FRENCH (FRN)

- FRN 522 French Civilization Before the French Revolution (3) OD**
Study of the history, philosophical movements, and general cultural developments in France from the earliest times until 1789. P: One 300-level FRN course or IC.
- FRN 524 French Civilization After the French Revolution (3) OD**
Study of the history, philosophical movements, and general cultural developments in France from 1789 to the present time. P: One 300-level FRN course or IC.
- FRN 525 Paris, Ville du Monde (Paris City of the World) (3) S**
A travel course designed to offer the novice a comprehensive introduction to the city of Paris. More advanced students will have the opportunity to concentrate on a particular topic of interest while building upon prior knowledge. P: One Intermediate French course of IC.
- FRN 540 French Literature: Middle Ages (3) OD**
Study of the texts and literary movements of the Medieval period. Introduction to some of the older works in the original language. P: One 300-level FRN course or IC.
- FRN 542 French Literature: Renaissance (3) OD**
Study of the texts and literary movements of the 16th century. Readings from Rabelais, Montaigne, Ronsard, DuBellay and others. P: One 300-level FRN course or IC.
- FRN 543 French Literature: 17th Century (3) OD**
Study of the texts and literary movements of 17th century France. Readings from Malherbe, Corneille, Descartes, Pascal, Racine, La Fontaine, La Rochefoucauld and others. P: One 300-level FRN course or IC.
- FRN 544 French Literature: 18th Century (3) OD**
A study of the texts and literary movements of 18th century France. Readings from Montesquieu, Voltaire, Diderot, Chénier, Rousseau and others. P: One 300-level FRN course or IC.
- FRN 548 French Literature: 19th Century (3) OD**
From “La Genie du Christianisme” to Naturalism; the most important literary movements; Romanticism, Parnasse and Symbolism (poetry). History, the Critics, Realism and Naturalism. From Hugo to Loti and France. P: One 300-level FRN course or IC.
- FRN 549 French Literature: 20th Century (3) OD**
Study of texts and literary movements from the turn of this century to the present with texts chosen to give both a depth and breadth of understanding for this period. P: One 300-level FRN course or IC.

- FRN 557 French Poetry (3) OD**
Close examination and study of selected works from the Middle Ages to the present. P: One 300-level FRN course or IC.
- FRN 564 History of the French Language (3) OD**
The development of the French language; general linguistic principles, the Celtic substrata, the Latin base, the various substrata, from the earliest to modern times. P: One 300-level FRN course or IC.

GERMAN (GER)

- GER 511 German Civilization and Culture of the Middle Ages (3) OD**
Development in language, social structure, religion, philosophy, education, art, architecture from the Germanic Era to the Renaissance. P: One 300-level GER course or IC.
- GER 513 German Civilization and Culture from the Reformation to German Romanticism (3) OD**
Developments in art, architecture, music, literature, religion, language, education, social structures during the Reformation, Baroque, Enlightenment and Classic Periods. P: One 300-level GER course or IC.
- GER 515 German Civilization and Culture from the Creation of the Second German Empire to the Foundings of the Federal and Democratic Republics (1848-1948) (3) OD**
Investigation of the interdependence between the historical development and cultural phenomena prior to the foundation of the "Kaiserreich" up to the establishment of the two German Republics. Particular attention devoted to the relationship of history and selected topics in literature, art, architecture, and music. P: One 300-level GER course or IC.
- GER 521 German Literature from Middle Ages to the Reformation (3) OD**
Reading and discussion of representative authors and selections of their works (Hildebrandslied, Nibelungenlied, Parzival, Tristan und Isolde, The Plowman from Bohemia, Martin Luther). P: One 300-level GER course or IC.
- GER 525 "The New Berlin" (3) OD**
Explore the culture, history, and politics of Berlin, a city undergoing radical transformation since the fall of the Berlin Wall in 1989 and German unification in 1990. Through walking tours and visits to sites such as the museum at Checkpoint Charlie, the Reichstag, and Alexanderplatz, students learn how the history and culture of the past continue to shape the future of Berlin, the new capital of the Federal Republic of Germany.
- GER 527 German Literature of the 19th Century (3) OD**
Reading and discussion of representative movements (Classicism, Romanticism, Realism, and Naturalism), their major authors and works. P: One 300-level GER course or IC.
- GER 529 Contemporary German Literature (3) OD**
Discussion of 20th century German literary movements and critical study of selected contemporary major works such as 'Novelle', drama, lyrics, and short stories. P: One 300-level GER course or IC.
- GER 531 German Romanticism: Literature, Art, and Music (3) OD**
Study of authors and literary masterworks of German Romanticism and examination of the relationship of romantic literature, art, and music. P: One 300-level GER course or IC.
- GER 541 German Narrative Prose (3) OD**
Reading and discussion of various literary forms of major German works written in prose. P: One 300-level GER course or IC.
- GER 543 German Drama (3) OD**
Development of the German drama from the 18th century to the present: Lessing, Goethe, Schiller, Kleist, Hebbel, Hauptmann, Kaiser, Brecht, Dürrenmatt and others. P: One 300-level GER course or IC.

- GER 545 German “Novelle”: 19th and 20th Centuries (3) OD**
Study of the development and tendencies of the German short novels in the nineteenth and twentieth centuries. P: One 300-level GER course or IC.
- GER 568 The Multiplicity of German Culture: Cultural Differences and Marginality (3) OD**
This course sets out to explore the voices of marginalized groups in Germany. A variety of ethical views will be employed to evaluate the strategies used to marginalize and those used to break down marginalization in social contexts. Students will discover how these groups find expression in German society and what strategies these groups employ for their survival. We will study German language, literature, and film while gaining a deeper understanding of the existing relationships between Germany’s main culture and the cultures of these marginalized groups.
- GER 572 Reading German Films (3) OD**
This course offers an introduction to the film analysis and 80 years of filmmaking in Germany. We will screen and discuss films from the Weimar Republic to the 21st century within the context of cultural and political history. The selected films, which range from silent movies to recent works by some of the world’s most influential directors, present a broad spectrum of aesthetic and political perspectives that include Expressionism, Nazi propaganda, and post-unification social criticism.

LINGUISTICS (LNG)

- LNG 511 General Linguistics (3) OD**
The nature of language; sound and symbol; dialect and language; the languages of the world; methods and disciplines of modern linguistics; phonetics; morphology; syntax; lexicology; the comparative method and related topics.

SPANISH

- SPN 541 Medieval Spanish Literature (3) I OD**
Course provides an insight to the most important writings of the Spanish Middle Ages and focuses on the three masterpieces of the period (Mio Cid, Libro de Buen Amor and La Celestina), but also emphasizes other poetic genres such as ballads and cancioneros. P: SPN 311 or SPN 312 or IC.
- SPN 542 Golden Age Literature (3) OD**
A study of the major literary figures of the Spanish Golden Age (16th and 17th centuries) such as Garcilaso, Quevedo, Cervantes and others. P: SPN 311 or SPN 312 or IC.
- SPN 544 Spanish Peninsular Narrative (3) OD**
A study of representative narrative texts from the late nineteenth and the twentieth centuries. P: SPN 311 or SPN 312 or IC.
- SPN 545 15th Century Sentimental Novel (3) OD**
Analysis of this late medieval genre based on the relationship between lovers who have never had any physical contact. Among various works, *Siervo Libre de Amor* and *La Carcel de Amor* will be examined. P: SPN 311 or 312 or IC.
- SPN 549 Twentieth Century Spanish Drama (3) OD**
Reading and analysis of plays by the following dramatists: García Lorca, Casona, Buero Vallejo and others. P: SPN 311 or SPN 312 or IC.
- SPN 550 Literature of the Colonial Period (3) OD**
Study of the major works from Columbus to Juana Inés de la Cruz. P: SPN 311 or 312 or IC.
- SPN 551 Latin-American Novel (3) I OD**
An introduction to the Latin-American novel, literary movements and techniques focusing on major writers such as García Márquez, Vargas Llosa, Luisa Valenzuela, Isabel Allende, etc. P: SPN 311 or SPN 312 or IC.

- SPN 552 The Latin-American Short Story (3) OD**
Study of the Latin-American short narrative from the nineteenth century to the present. Selected stories by Echeverría, García Márquez, Rosario Ferré, Elena Poniatowska, Julio Cortázar, Jorge Luis Borges, and others. P: SPN 311 or SPN 312 or IC.
- SPN 553 Contemporary Latino(a) Literature (3) OD**
Analysis of works by contemporary authors of Hispanic descent born or residing in the United States. It will include but will not be limited to the following authors: Richard Rodriguez, Julia Alvarez, Cristina Garcia, Sandra Cisneros, Roberto Fernandez, Sandra Benitez and Esmeralda Santiago.
- SPN 554 Twentieth Century Latin-American Poetry (3) OD**
A study of Latin-American poetry from the Vanguardista period to the contemporary scene. P: SPN 311 or SPN 312 or IC.
- SPN 555 Twentieth Century Latin-American Theater (3) OD**
A study of Latin-American theater from the end of the nineteenth century to the present. P: SPN 311 or 312 or IC.
- SPN 557 Contemporary Spanish Poetry (3) OD**
A selection of works and styles of the nineteenth and twentieth centuries. P: SPN 311 or SPN 312 or IC.
- SPN 561 The Generation of 1898 (3) OD**
Reading and analysis of the major works of the following novelists and nonfiction writers: Unamuno, Valle-Inclán, Baroja, and Azorín. P: SPN 311 or SPN 312 or IC.
- SPN 568 Multicultural Spain Through Letters, Politics, Theater and Film (3) OD**
This course offers in-depth examination of the cultural plurality of Spain. Through a variety of texts including but not limited to short stories, plays, political manifestos, essays, poetry, music, performance and film, students will explore how different art forms contribute to the concept of *national identity or national identities* from around Spain. The focus will be on Twentieth-Century works. Additional reading will be placed on reserve in the library and be assigned alongside the primary texts for the course in order to contextualize our studies.

MOLECULAR BIOLOGY
(SEE DEPARTMENT OF BIOMEDICAL SCIENCES)

NATURAL SCIENCE (NSC)
(Administered by the Department of Physics)

Natural Science is not offered as a graduate major. However, the following Natural Science courses may, with the approval of the major adviser, be included as specified in certain graduate degree programs offered by various other departments.

- NSC 505 Workshop in Earth Sciences (3) OD (Same as PHY 505)**
Intensive workshop for teachers and teacher education students, providing practice in preparing and using materials for teaching topics in earth sciences: geology, meteorology, oceanography, climatology, hydrology, and astronomy.
- NSC 506 Workshop in Environmental Education (1) S (Same as EDU 506)**
Advanced Project WILD. Special topics in the teaching of environmental education for those who have participated in a Project WILD or Aquatic WILD workshop. May be repeated to a limit of three semester hours.
- NSC 541 Atmospheric Diffusion, Air Pollution, and Environmental Impact Analysis(3) OD (Same as ATS 541)**
Survey of the theoretical and practical aspects of diffusion, dispersion, and turbulent transport of pollutants in an atmospheric boundary layer. Includes observational and in-

strumentation techniques; plume-rise models; regional pollution transport; and diffusion from point, line, and area sources. Chemical and physical transformations of the pollutants, precipitation scavenging, and dry deposition are studied. Reviews Federal environmental laws, air quality standards, environmental impact assessments, ethics, and guidelines for writing environmental impact statements. P: NSC 113 or equiv.

NSC 544 Hydrology (3) I 1994-95 (Same as ATS 544)

Study of the waters of the earth, especially with relation to the effects of precipitation and evaporation upon the occurrence and character of water in streams, lakes, and on or below the land surface. In terms of hydrologic cycle, the scope of this course may be defined as that portion of the cycle from precipitation to reevaporation or return of the water to the seas. P: NSC 113 or 231.

NSC 556 Introduction to Physical Oceanography (3) OD (Same as ATS 556)

Geomorphology of the ocean bottom; properties of sea water; salinity and temperature distributions; major ocean currents and circulations; equations of motion, horizontal wind-driven currents; thermohaline circulations; wind waves and swell.

NEUROBIOLOGY

(See Department of Biomedical Sciences)

NURSING (NUR)

Professors Braden, Kitchens, Norris, and Pinch; Associate Professors Bergman-Evans, Furlong, Howell, Kunes-Connell, Lappe and Lazure; Assistant Professors Graves and Wilken; Adjunct Assistant Professor Hellman.

Program Description

Master of Science (M.S.) Program

A program of graduate study in nursing is offered leading to the degree of Master of Science (M.S.). Emphasis is placed on preparing graduates with advanced practice competencies and specialized role knowledge to meet the demands of the changing health care environment. Students complete core requirements and a clinical focus (as a neonatal, family or adult nurse practitioner or as a clinical specialist) or a role option as a nursing systems manager. Blended options that combine the curriculums of a clinical nurse specialist with that of a nurse practitioner are also available for Community Health Specialist and Family Nurse Practitioner, Cardiac Health, Wellness and Rehabilitation and Adult Nurse Practitioner, or Acute Care Gerontology and Adult Nurse Practitioner. The program is accredited by the Commission on Collegiate Nursing Education (CCNE).

Graduate study in nursing integrates nursing practice, issues, theories, science, ethics, research and advanced practice roles. It is designed to assist the professional nurse to respond to challenges in nursing practice and in the health care system and assume leadership in providing and managing quality, cost-effective and innovative services to clients. Intensive study focuses on health promotion, health maintenance, care management, and achievement of optimum outcomes for individuals, families, communities and systems. The program affords opportunities to develop collegial relationships with others to address key aspects of resource utilization, outcome improvements and ethical decision making in the delivery system.

Purpose

The purpose of the M.S. in nursing program is to prepare nurses for advanced practice roles. Graduates are capable of improving health care through selectively contributing to the development of nursing practice, theory and science and are prepared to participate as practitioners, nurse consultants, collaborators, and change agents in health-care systems.

Prerequisites for Admission

Applicants for admission to the graduate program in nursing must meet the following requirements:

1. A *Bachelor of Science* degree with a major in nursing from a NLN or CCNE accredited college or university.
2. A cumulative G.P.A. of 3.00 on a 4.0 scale.
3. Successful completion of undergraduate courses in Physical Assessment or equivalent.
4. Three recommendations from persons able to evaluate the applicant's current and potential competency in nursing and academic potential.
5. An official transcript of all previous academic work at the collegiate level.
6. Professional nursing practice experience is recommended and 2000 hours of work experience in direct patient/client care are required before enrolling in clinical practice course.

Applicants who do not meet the above criteria will be considered on an individual basis.

NOTE: The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550, or 213 on the Computer-Based Test (CBT), in the TOEFL (Test of English as a Foreign Language) examination.

Degree Requirements

Students complete a sequence of core courses and clinical courses (for nurse practitioners and clinical nurse specialists) or role development courses. Graduate Nursing Core includes 20 semester credit hours with an additional 10-11 credits in the Nurse Practitioner and Clinical Nurse Specialist Advanced Practice Core. Specific practice options include Clinical Nurse Specialist (15 credits), Adult Nurse Practitioner (16 credits), Family Nurse Practitioner (19 credits), or Neonatal Nurse Practitioner (15 credits).

Thesis/nonthesis Options: Students may choose to do a thesis.

NUR 602 Neonatal Assessment (3) OD

Incorporates knowledge of perinatal history taking, physical exam and common technologic procedures in assessment of gestational age, APGAR score, neuromotor development, with preceptored practicum experiences in doing assessments of normal and high risk neonates (2 semester hour didactic/60 contact hours of practicum experiences).

NUR 603 Advanced Health Assessment and Diagnostic Reasoning (4)

(2 didactic/1 laboratory/1 practicum) II

Provides advanced skills in history taking and physical examination. Theory content, skill demonstration, and diagnostic reasoning will be integrated with Practicum/Laboratory experiences, permitting immediate application of new skills into a clinical setting. P: 2000 hours direct patient care experience.

NUR 606 Advanced Pharmacology (3) S

Pharmacotherapeutic effects and clinical uses of specific drug groups as relevant to primary health care. Pharmacological mechanisms associated with drug interactions, incompatibilities, side effects, contraindications and patient education are discussed as a basis for clinical judgments in managing patients with common acute and stable chronic conditions. Designed to meet requirements for nurse practitioners to practice with prescriptive privileges.

- NUR 607 Theoretical Foundations of Advanced Nursing Practice (2) I**
Introduction to the analysis, evaluation and application of selected theories related to advanced practice nursing. Special emphasis is placed on strategies of theory development, the purposes of theories, and the inter-relationships between theory, research and practice.
- NUR 610 Management of High Risk Neonates (4) (3 didactic credit hours with 1 credit practicum) OD**
Didactic content (3 semester hours) and preceptored clinical practicum experiences (60 contact hours) in management of common cardiovascular, gastrointestinal, metabolic, endocrine, hematological, renal, neurological and infectious disorders. P: NUR 612, 614.
- NUR 611 Management of High Risk Neonates II (3/1)**
This course is a continuation of didactic content and preceptored clinical practicum experiences in management of common cardiovascular, gastrointestinal, metabolic, endocrine, hematological, renal, neurological and infectious disorders that affect the neonate. P: NUR 610
- NUR 612 Neonatal Assessment and Diagnostic Practicum (2) OD**
Preceptored practicum applying knowledge of assessments, radiological evaluation, laboratory interpretation and diagnostic reasoning for normal and high risk neonates. Students will identify nutritional needs, respiratory distress, apnea, cardiovascular, nutritional, gastrointestinal, hematological, renal, sensory, neurological and infectious disorders (120 contact hours.) P: NUR 602.
- NUR 614 Pharmacotherapeutics for Neonatal Intensive Care (3) OD**
Principles of pharmacology, implications for nutrition, pain management, medications in ventilation therapy, drug administration for neonates and effects of prenatal substance abuse are discussed.
- NUR 618 Care of High Risk Neonate Practicum (2) OD**
Application of principles of assessment and management of the care of high risk neonates under the direction of a preceptor (NICNP or neonatologist). (120 credit hours) P: NUR 610, 612, 614.
- NUR 620 Maternal and Child Care Management (5) (3/2) (3 didactic credit hours with 2 credit practicum) II**
A course designed for advanced practice nursing students. It reviews health care issues for pregnant and pediatric populations. Students will provide health care to pregnant clients and pediatric clients under direct supervision of a preceptor. P: IC, 603, 606, 629, 651.
- NUR 621 Fundamental Principles of Management (3) II**
Study of organizational theories and behavior related to health care settings. Focuses on contemporary models of delivery, organizational communication, motivation and critical thinking to achieve optimal quality care in a cost effective manner.
- NUR 622 Family Health Seminar (1) S**
Examines theoretical perspectives on families and methods for promoting the health of families. Conditions and resources influencing the ability to respond to and maintain the health of families are explored.
- NUR 623 Theoretical Formulations in Public and Community Health Nursing (1)**
This course is designed to facilitate transition into advanced practice nursing roles in the care of communities and populations. Beginning graduate students are introduced to theoretical perspectives in public and community health and the skills and knowledge associated with the core functions in public health (i.e., assessment, policy development, and assurance). Emphasis is on assessment and students will apply basic principles of epidemiology and the demographic measurement of populations and groups to examine the distributive factors of health and disease in communities and populations. P: NUR 607, 629 or permission of instructor.

- NUR 624 Policy Development in Public Health and Community Health Nursing (1)**
The emphasis of this course is on assessment and policy development. Students will use community assessment information in initiating program planning and advocating for improvement in the health of communities and populations. Interventions that promote health of communities and populations through behavior change and advocacy strategies are examined. P: NUR 623, 636, 648 or permission of instructor.
- NUR 625 Management Practice (1-2) I**
Examination of legal and ethical issues pertinent to nursing management in a managed care environment. Application of theory in design and implementation of a change project including the evaluation process in a clinical setting. Preceptored practicum is 90 contact hours. P: NUR 621, 790 & clinical courses.
- NUR 626 Informatics in Advanced Nursing Practice (2) I**
Builds on basic computer skills to provide a foundation for incorporating information technology skills into the provision and evaluation of health care. Students will identify data sources relevant to their specific population focus and explore how that data might be used to support data driven decisions. Computer skills for analysis and presentation of data will be developed. P: successful completion of the Computer Skills Assessment.
- NUR 627 Outcome Analysis in Public Health and Community Health Nursing (1)**
The course emphasizes the primary public health function of assurance. Students use performance monitoring tools to assess health improvement activities and contributions of the various sectors influencing health care and improvement. Interventions that help communities and populations establish stability and restore health in extreme conditions of stress and crisis will be addressed. P: NUR 622; P/CO: NUR 736.
- NUR 628 Practicum in Public Health and Community Health Nursing (2)**
The course is directed at the synthesis of knowledge of public health and community health nursing. Students implement the core functions of public health to deliver high-quality health care and initiate change for the improvement of care. Students apply knowledge and skills in public health and community health nursing in implementing and evaluating a collaborative plan for improving community or population health based on relevant assessment data and research. P: NUR 627; NUR 797 or permission of instructor.
- NUR 629 Epidemiological Principles Applied to Health Promotion and Disease Prevention (2) I**
Health beliefs, health promotion, and risk reduction assessment throughout the lifespan will be examined through theoretical and empirical bases. Healthy People's national objectives will provide the organizing framework for the consideration of health behaviors. The fundamentals of epidemiology and biostatistics will guide comparison of groups and inference development. Strategies and benefits of health promotion interventions in primary health care will be emphasized, along with the following influences: cultural diversity, financing, identification of primary stakeholders, and related public policy.
- NUR 631 Principles of Learning and Instruction (3) S**
Study of the processes, philosophies and supporting theories for designing curriculum and instruction. Includes a one credit practicum (60 contact hours) project in which this knowledge will be applied in the design and critique of a unit of instruction for nursing or health education.
- NUR 632 Human Diversity and Social Issues in Health Care (2) I**
Focuses on the understanding of the interplay and synthesis of cultural and social issues in the client's perception of a health problem and its treatment. Explores conflicts between the provider and client related to belief systems and perceptions of care needs. P: permission of instructor.
- NUR 635 Educational Evaluation (3) II**
Systematic study of educational evaluation and its application to professional nursing education and client education programs. Topics of study include: evaluation as a disciplined inquiry, frameworks for planning evaluations, the change process, norm-referenced vs. criterion-referenced measurement, reporting results, and cost-benefit analysis. P: NUR 631, 790 and clinical courses.

- NUR 636 Research Design and Statistical Reasoning (3) II**
 Foundational skills and knowledge for analysis and application of research design and methods. Emphasis on selection of statistical tests and interpretation of results. P: NUR 626 and descriptive statistics.
- NUR 640 Bioethics and Nursing (2) II**
 Understand values, beliefs, and traditions and their impact on ethical decision making. Provides an opportunity to examine personal values and beliefs, professional codes of ethics, and bioethical theory in order to facilitate the ethical decision making process. Communicating the results of the bioethical decision making as it applies to health care dilemmas or problems is posited as an essential task of the endeavor.
- NUR 648 Health Care Policy, Organization and Financing I (2) II**
 Designed to assist the beginning graduate student to acquire a theoretical foundation about health care organizations and their environments and health policy which can be used to facilitate the delivery of client care and transition to advanced practice roles. Student will learn quality improvement principles and management concepts integral to care delivery decision-making processes. P: Computer competency.
- NUR 649 Health Care Policy, Organization and Financing II (2) S**
 Continues the process of assisting graduate students to acquire a theoretical foundation for designing initiatives that lead to improvement of client care. The focus is on elements of human, fiscal, and material resource management concepts and principles integral to care delivery decision-making processes. Prerequisite: NUR 648.
- NUR 651 Advanced Pathophysiology (3) I**
 Designed to provide the student with an understanding of the relationship between normal physiologic functioning and pathophysiologic phenomena and clinical manifestations of human responses to actual or potential health alterations across the lifespan. This base serves as one of the primary components for clinical assessment, decision-making, and management.
- NUR 652 Advanced Neonatal Pathophysiology (3) I**
 This course is designed to provide the student with an understanding of the relationship between normal physiologic functioning and pathophysiologic phenomena and clinical manifestations of human responses to actual or potential health alterations for the neonate. This base serves as one of the primary components for clinical assessment, decision-making, and management.
- NUR 660 Adult Primary Care I (5) (3 didactic/2 practicum) S**
 Designed for adult and family nurse practitioner students. It offers the theory and skills needed to provide primary care to adult clients. Students will provide primary health care to adults under the direct supervision of a preceptor. P: NUR 603, 629, 651, and Laboratory Testing Practicum. P or CO: NUR 606.
- NUR 661 Case Management (3) (2 didactic/1 practicum) II**
 Emphasis on the conceptual basis for nursing case management and the models and mechanisms of coordination for clients with complex needs for multiple services; the processes of resource assessment; service care planning; selection, coordination, monitoring of resources and ongoing evaluation of the client's movement through the health care system. A one credit practicum (60 contact hours) is required and will take place in the setting in which students plan to practice.
- NUR 662 Foundations of Functional Health for the Older Adult (3 or 6) I (3 didactic/3 clinical)**
 Emphasis on evaluation and maintenance of functional health for older adults across the care continuum. Classroom and clinical experiences include comprehensive assessment of health and functional status and application of health promotion, disease prevention, and disability limitation concepts needed by advanced practice nurses providing care to aging populations.

- NUR 664 Acute Care Gerontological Nursing (3 or 6) II (3 didactic/3 clinical)**
Examination of clinical issues related to the specialized health care needs of older adults experiencing acute illness or exacerbation of chronic disease. Major disease processes and syndromes experienced by older adults will be discussed. Theory and clinical experiences focus on advanced assessment and care management skills needed by the advanced practice nurse. P or CO: NUR 603, NUR 651.
- NUR 665 CNS Role Development (3) II**
This course emphasizes the expanded role of expert nurse clinicians as clinical nurse specialists and their impact on care. The didactic portion of the course involves discussion of the history and essential components of the role of the clinical nurse specialist in practice and research. The practicum experience focuses on the investigation of dynamics of this role in a practice setting and will be determined through a process of negotiation between the instructor and student. P or CO: NUR 661, 736 and clinical courses.
- NUR 669 Exercise in Cardiac Rehabilitation: Physiology, Methodology and Prescription (3) II**
Focus is the systematic study of exercise in individuals with a cardiac diagnosis and application of exercise to cardiac rehabilitation nursing practice. Emphasis on cardiac exercise physiology; normal and cardiac responses to exercise are compared. Exercise testing and prescription, both formulation, implementation and assessment of training regimens are covered through didactic and practicum experiences. Implications of comorbidities in the rehabilitation participants are discussed.
- NUR 670 Cardiac Health and Rehabilitation (4) I**
Course focuses on discussion of the history, structure, and process of cardiac rehabilitation and wellness with particular emphasis on the interrelationship between theory, practice, and research specific to this specialty area. Examination of the expanded role of the nurse in cardiac rehabilitation as it impacts client care from admission diagnostics to lifelong lifestyle modification.
- NUR 678 Internship in Cardiac Health, Wellness, and Rehabilitation (1-3) I, II, S**
This practicum experience focuses on the actualization of the role of the advanced practice nurse, clinical specialist or nurse practitioner, within cardiac health, wellness and rehabilitation setting. P: NUR 669, 670.
- NUR 736 Research Utilization (3) I**
Proficient at research critique and utilization; aware of ability to initiate change, improve nursing practice and patient outcomes through research endeavors. Provides an opportunity to identify a professional/clinical problem or issue and explore the potential use of research to solve that problem through the application of a research utilization model. P: NUR 636, NUR 607.
- NUR 770 Adult Primary Care II (5) (3 didactic/2 practicum) I**
Examination of common clinical issues and health care problems of adults. Theory and clinical experiences address refinement and practice of health appraisal, diagnostic reasoning, and disease management skills needed by Advanced Practice Nurses providing primary care. P: Nur 660.
- NUR 792 Adult Nurse Practitioner (ANP) Practicum (6) II**
Synthesis practicum for adult nurse practitioner students. Students will provide for the health needs and assessment, diagnosis, and treatment of simple acute and stable chronic conditions of adults under the direct supervision of a preceptor. Prerequisites: Nur 660, 770. Final course for ANP students.
- NUR 793 NICNP Role Practicum (4) OD**
Final course in the Neonatal intensive care nurse practitioner option. Enactment of the NICNP Role under the supervision of a neonatologist or NICNP in the NICU and completion of the comprehensive exam paper which involves selection of a clinical problem, research utilization and planned change project to resolve the problem. (240 contact hours)

- NUR 795 Directed Independent Study (3) I, II, S**
Independent project on a topic designed by the student with approval of the adviser and program chair.
- NUR 797 Family Nurse Practitioner (FNP) Practicum (4) II**
Synthesis practicum for family nurse practitioner students. Students will provide for the health needs and assessment, diagnosis and treatment of simple acute and stable chronic conditions of families under the direct supervision of a preceptor. P: Nur 660, 770 P: or CO: Nur 620. Final course for FNP students.
- NUR 799 Master's Thesis (3) I, II**
Course designed to assist the student in the preparation of the master's thesis. The thesis must demonstrate independent work based in part upon original material. Replication of studies is encouraged, explicitly when new digressions and/or innovative applications are involved. The thesis should present evidence of the student's thorough acquaintance with the literature of a limited field in nursing practice, administration and/or education. The student must be able to identify a researchable problem, prepare an acceptable proposal, collect and analyze data, write the thesis, and successfully complete an oral defense of the final document. P: NUR 607, 609, 636, 736, and comprehensive examination.

PHARMACEUTICAL SCIENCES (MPS)

Professor Khan (Program Director); Professors Abel, Bertoni, Dowd, Makoid, Marcus, Ohia, Pioreschi, Roche, and Stohs; Associate Professors Alsharif, Dash, Jeffries, Keefner, Padron, Petzel, Reidelberger, Smith, and Wangemann; Assistant Professors Bockman, Kincaid, Scofield, Shara, and Zardetto-Smith.

Program and Objectives

Master of Science (M.S.) and Doctor of Pharmacy/Master of Science (Pharm.D./M.S.)

The graduate program in Pharmaceutical Sciences encompasses a multi-disciplinary approach to graduate training, culminating in the M.S. degree. The program is administered by the Department of Pharmaceutical and Administrative Sciences, School of Pharmacy and Allied Health Professions and the Department of Pharmacology, School of Medicine.

The program of study leads either to a joint (dual track) Doctor of Pharmacy (Pharm.D.)/M.S. or to an M.S. degree only. Two types of students are envisioned as entrants in this program. The first type consists of students who possess a B.S. degree in pharmacy or a biological, physical or chemical science and wish to further their education in an advanced degree program. The second type consists of students who are currently enrolled in Creighton's Pharm.D. program who want to obtain an additional advanced academic degree during the course of their studies. The program of study is tailored to the individual needs of each student and is based on the background and career objectives of each student. Students are expected to complete a series of required and elective courses and to perform original research. Furthermore, students are required to submit a thesis based on the outcome of their research. The program provides opportunity for students to specialize in the following areas: pharmacology, toxicology, pharmaceuticals, pharmacokinetics and medicinal chemistry. In addition, the program encourages student interactions with faculty in the Departments of Biomedical Sciences, Medical Microbiology and Chemistry.

Prerequisites for Admission

1. A Bachelor's degree or its equivalent from an accredited college or university.
2. Students who are in the Pharm.D. program must be admitted into the Graduate School in order to participate in the joint Pharm.D./M.S. program in pharmaceutical sciences.

3. An overall GPA of 3.0 and a combined GRE score above 1500 is desired.
4. The Graduate School requires that all students from countries in which English is not the native language demonstrate competence in English by a score of 550 in the TOEFL (Test of English as a Foreign Language) examination.

General Requirements

The general requirements of the Graduate School Bulletin listed under Administration and Policies Governing Graduate Study are met. Courses can be selected from the list below or from related subjects, according to the needs of the student. To qualify for the degree, the student must earn at least 30 semester hours of graduate credit beyond the baccalaureate. The student must maintain a B (3.0) average grade throughout the graduate program.

Special Requirements

The following requirements are applicable to students enrolled in the Pharm.D./M.S. program:

1. A maximum of four credit hours of seminar and a maximum of six credit hours of thesis can be applied toward the M.S. degree.
2. Not more than 12 credit hours of Pharm.D. courses can be applied toward the M.S. degree.
3. A minimum of 12 credit hours must be earned in courses that are not listed as required courses for the Pharm.D. degree.
4. A minimum of 30 credit hours is required for graduation.
5. A typical plan of study consists of the following:

Dual Credit (Pharm.D.) Courses	12 hrs
Graduate Credit Only Courses	12-15 hrs
Seminar	3-4 hrs
Thesis	6 hrs
	33-37 hrs

Coursework

<i>Course Name</i>	<i>Course #</i>	<i>Credit Hours</i>
1. Pharm.D./M.S. Dual Listed Courses		
Biochemistry	MPS 521/BMS 521	4
Chemical Basis of Drug Action I	MPS 531/PHA 337	3
Chemical Basis of Drug Action II	MPS 532/PHA 447	3
Biostatistics and Research Design	MPS 544/PHA 444	3
Industrial Pharmacy	MPS 509/PHA 467	2
Medical Pharmacology I	MPS 631/PHR 631	5
Medical Pharmacology I	MPS 632/PHR 632	5

2. Graduate Courses in Other Departments

With permission from their supervisor, students in the program may also enroll in graduate courses offered by other departments. Listed below are examples of courses offered by other departments that may be relevant to the M.S. degree program.

Biomedical Sciences:

Cell Biology	BMS 603	4
Molecular Biology	BMS 604	4
Molecular Endocrinology	BMS 605	3
Enzymes	BMS 607	4
Peptide Chemistry	BMS 608	4
Proteins	BMS 606	4
Biochemistry of Lipids	BMS 609	4

The Carbohydrates	BMS 610	3
Medical Microbiology:		
Medical Microbiology and Immunology	MIC 615	5
Microbial Physiology	MIC 739	4
Antimicrobial Agents and Chemotherapy	MIC 753	4
Methods in Medical Microbiology and Immunology	MIC 727	3
Advanced Immunology	MIC 746	3
Chemistry:		
Inorganic Chemistry I, II	CHM 501/502	2/2
Environmental Chemistry and Natural Resources	CHM 506	3
Synthetic Organic Methods	CHM 521	3
Bioorganic Chemistry	CHM 523	3
Advanced Techniques in Organic Chemistry	CHM524	3
Organic Spectroscopic Analysis	CHM525	3

Pharm.D./M.S. Dual Listed Courses

- MPS 521/ BMS 521 Principles of Biochemistry
See description as listed under the Biomedical Sciences program.
- MPS 631/PHR 631 Pharmacology I (5)
See description as listed under Pharmacology program
- MPS 632/PHR 632 Pharmacology II (5)
Continuation of PHR 631. P: PHR 631.

MPS 531/PHA 337 Chemical Basis of Drug Action I (2)

This course instructs the student on the chemical basis for drug behavior, both in vivo and in vitro. General chemical principles, physicochemical properties, and drug-receptor interactions are used to derive structure-activity relationships for important and commonly encountered classes of drugs. This permits the understanding of pharmacological and biopharmaceutical profiles of currently available drug products, and explains the scientific rationale behind their therapeutic use. Chemically based therapeutic case studies and structurally based therapeutic evaluations are utilized to help students develop a scientific basis for rational therapeutic decision-making. This practice-oriented approach, which emphasizes the relevance of chemistry to contemporary pharmacy practice, gives students the skills necessary to predict biological properties and therapeutic activities of future drug molecules. This course builds upon previously acquired knowledge of biochemistry, pharmaceutics and basic pharmaceutical sciences principles, and compliments concepts being addressed in pharmacology. P: BMS 302.

MPS 532/PHA 447 Chemical Basis of Drug Action II (2)

A continuation of PHA 337.

MPS 544/PHA 444 Biostatistics and Research Design (3)

This course is an introduction to statistics and research design. The course covers basic statistical concepts, techniques, notations and computations including descriptive and inferential statistics with an emphasis on statistical methods, computerized data analysis and data assessments most commonly associated with pharmaceutical and medical research. Basic descriptive and inferential statistical processes and procedures are presented as well as topics on the development of research protocols, survey research, clinical drug investigations, and grant development. P: PHA 318.

MPS 509/PHA 467 Industrial Pharmacy (3)

This course will prepare students to design, manufacture and evaluate different pharmaceutical dosage forms in an industrial environment. The course content will include preformulation studies, formulation of liquid and solid oral pharmaceutical dosage forms, recent advances and trends in controlled or sustained release formulations, drug regulatory affairs and current good manufacturing practices. P: PHA 315.

Graduate Courses in Pharmaceutical Sciences

MPS 611 Monoclonal Antibodies As Therapeutic Agents (2)

This course will provide instruction in the modern concepts of the use of monoclonal antibodies as therapeutic agents. The application of monoclonal antibodies and their conjugates in the treatment of neoplastic diseases, autoimmune diseases, immunodeficiency disease state and in tissue transplantation will be discussed. P: PHA 459.

MPS 617 Advanced Pharmaceutics (3)

This course will provide an in-depth study of the physical and chemical principles which are involved in the development, formation and stabilization of selected pharmaceutical dosage forms for optimization of drug bioavailability and therapeutic utility.

MPS 622 Advanced Medicinal Chemistry (3)

This course will build upon the scientific foundation laid by the Chemical Basis of Drug Action professional course sequence. The structure-activity relationships of complex drug molecules will be investigated and discussed. Students as well as faculty will be involved in presenting information on the chemically important aspects of drug delivery, stability, receptor affinity and selectivity, metabolic vulnerability and distribution.

MPS 623 Free Radical Toxicity (2)

The chemistry and reactivity of free radicals in biological systems will be discussed. In addition, cellular sources of free radicals and the mechanisms of free radical toxicity will be presented. Finally, compounds whose toxicity has been related to free radicals and selected diseases associated with free radicals will be discussed.

MPS 625 Mechanisms of Toxicology (2)

An in-depth discussion of non-organ directed toxicity including chemical carcinogenesis, genetic and developmental toxicology. Target organ toxicity including toxic responses of the blood, immune system, liver, kidney, respiratory system, heart and vascular systems, skin, reproductive system, eye and endocrine system will also be discussed.

MPS 633 Research Methods (3)

Laboratory rotations in which graduate students perform or observe methods used in pharmaceutical and administrative sciences research. The value of the methods and their applications to the research efforts of the pharmaceutical sciences faculty are described in detail. P: DC.

MPS 635 Advanced Toxicology (3)

An in-depth consideration of principles, concepts and molecular mechanisms of toxicity. The current status of toxicologic principles concerned with public health, drugs, food technology, veterinary medicine and agriculture will be examined. P: DC.

MPS 643 Ophthalmic Pharmacodynamics (2)

This course will provide instruction on both basic and clinical principles of drug action in the eye. A review of anatomy, physiology, and biochemistry of the ocular system will provide the essential background necessary for understanding the mechanism of drug action in the eye. Pharmacokinetic and toxicological principles relevant to the ocular system will also be reviewed. The use of drugs in the treatment of diseases of the eye such as uveitis, cataracts and glaucoma will be discussed. P: MPS 631/PHR 631; MPS 632/PHR 632.

MPS 665 Advanced Pharmacokinetics (2)

Computer modelling of the absorption, distribution, metabolism, and excretion of drugs will be the core of the course content. Multicompartmental analysis, non-compartmental analysis as well as non-linear kinetics will be discussed. Development of a pharmacokinetic protocol through the various phases of INDA submission as well as in vitro - in vivo correlations will be considered.

- MPS 675 Solid Delivery Systems (3)**
The course uses a physical chemistry approach to solving the problems associated with practical design of solid dosage forms as well as those associated with their evaluation.
- MPS 676 Disperse Systems (3)**
The course uses a physical chemistry approach to solving the problems associated with practical design of disperse system dosage forms as well as those associated with their evaluation.
- MPS 677 Macromolecular Systems (3)**
The course uses a physical chemistry approach to solving the problems associated with the manufacture, evaluation and utilization of polymers in the design of drug delivery systems as well as macromolecules as drugs.
- MPS 691 Pharmaceutical Sciences Seminar (1-3)**
Seminar in selected subjects for pharmaceutical sciences graduate students. P: DC.
- MPS 692 Directed Independent Study (1-5)**
Supervised independent projects that may include laboratory work, assigned readings, research papers, etc. Available in toxicology, biopharmaceutics, medicinal chemistry, pharmacodynamics and pharmacokinetics. P: Undergraduate or graduate stdg. & DC.
- MPS 693 Directed Independent Research (1-5)**
Supervised independent research for motivated students to become involved in ongoing original research projects of the pharmaceutical sciences faculty. P: Undergraduate or graduate stdg. & DC.
- MPS 797 Master's Directed Independent Research (1-4)**
Supervised original research. P: DC.
- MPS 799 Master's Thesis (1-8)**
Review of the literature and research data; writing of the thesis. Student must register for this course in any term when engaged in formal preparation of the Master's thesis; however, six credit hours are the maximum applicable toward the degree. P: DC.

PHARMACOLOGY (PHR)

Professors Dowd (Chair), Abel, Bertoni, Khan, Makoid, Marcus, Ohia, Reidelberger, Roche, and Stohs; Associate Professors Alsharif, Jeffries, Petzel, Scofield, Smith, and Wangemann; Assistant Professors Bockman, Bradley, Norton, and Wolff.

Program and Objectives

The objective of graduate studies in pharmacology is to provide graduate students a comprehensive educational program in pharmacology. The programs are also designed to help the student obtain expertise in his or her area of research with detailed comprehension of a specialized area of pharmacology. These specialized areas include autonomic pharmacology, cardiovascular pharmacology, renal pharmacology, smooth-muscle pharmacology, exocrine pharmacology, immunopharmacology, toxicology, drug metabolism and hypertension. Specific areas of interest include drug-receptor interactions, signal transduction, ion channel function and molecular approaches to studying receptor and gene function. The interdisciplinary nature of pharmacology offers the student a broad range of options for research endeavors.

Doctor of Philosophy (Ph.D.) Program

The objectives of this program are to prepare highly qualified students for careers in research and teaching in the field of pharmacology. Ph.D. candidates will be required to demonstrate a broad knowledge of the field of pharmacology and detailed expertise in their research area.

Master of Science Degree Program in Pharmaceutical Sciences

This program is a joint effort on the part of the Department of Pharmacology in the School of Medicine and the Department of Pharmaceutical and Administrative Sciences in the School of Pharmacy and Allied Health. This program provides instruction in one of five disciplines: Pharmacology, Toxicology, Pharmaceutics, Pharmacokinetics and Medicinal Chemistry. Two tracks are offered: (1) a dual track culminating in the simultaneous granting of the Pharm.D. and M.S. degrees and (2) a single track for students with a B.S. in a biological or physical science, culminating in the awarding of the M.S. degree.

Prerequisites for Admission

The applicant must possess a baccalaureate degree from an accredited college or university. The Graduate Record Examination (GRE) must be taken. Generally, an overall undergraduate quality-point average (QPA) of 3.0 or higher in sciences, and a combined GRE score above 1500 are required. Undergraduate courses in biology, general chemistry, organic chemistry, biochemistry, mathematics and physics are required. Isolated deficiencies may be made up in the graduate program. However, before a student starts research, these courses have to be completed with an overall QPA of 3.0 or higher.

This program requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550 or 213 on the Computer-Based Test (CBT) in the TOEFL (Test of English as a Foreign Language) examination and a minimum score of 5.0 on the TWE (Test of Written English).

General Requirements

For the Ph.D. degree at least 90 semester hours of graduate credit are required. Usually, 45 hours are obtained in course work, 25 are earned by independent research, and 20 are acquired in preparing the doctoral dissertation. To qualify for the M.S. degree in pharmacology, the student must earn at least 30 semester hours of graduate credit beyond the baccalaureate. The student must maintain a B (3.0) average throughout the graduate program, with no more than 6 credits with a grade of C.

Special Requirements

All students are required to take graduate level Physiology and Biological Chemistry courses. PHR 631 and PHR 632 — Medical Pharmacology I and II and PHR 711 — Receptor and Molecular Pharmacology — are also required for all graduate students.

PHR 531 Chemical Basis of Drug Action I (3) I

The chemical basis for drug action *in vivo* and *in vitro*. General chemical principles, physicochemical properties and drug-receptor interactions are used to derive structure-activity relationships for important drug classes permitting the understanding of the pharmacological and biopharmaceutical profiles of currently available drug products. Provides a basis for predicting biological properties and activities of future products. This course was formerly titled "Medicinal Chemistry I." P: IC.

PHR 532 Medicinal Chemistry II (3) II

Continuation of PHR 531. P: DC.

PHR 537 Rational Drug Design and Discovery (2) I, OD

Scientific basis for the rational design and development of new drug molecules. Discussion of drug-receptor theory, structure activity relationships, and specific examples of the design of new drugs. P: DC.

PHR 595 Directed Independent Study (1-5) I, II, S (OD)

Supervised independent projects that may include laboratory work, assigned readings, research papers, etc. Available in autonomic pharmacology, cardiovascular pharmacology, exocrine pharmacology, and neuropharmacology. P: Undergraduate or graduate stdg. and DC.

- PHR 597 Directed Independent Research** (1-4) I, II, S (OD)
Supervised independent research for motivated students to become involved in ongoing original research projects of the pharmacology faculty. P: Undergraduate or graduate stdg. & DC.
- PHR 631 Medical Pharmacology I** (5) I
Human pharmacology and therapeutics. Lectures, conferences, and demonstrations.
- PHR 632 Medical Pharmacology II** (5) II
A continuation of Medical Pharmacology I.
- PHR 711 Receptor and Molecular Pharmacology** (3) II, OD
Exhaustive treatment of receptor and molecular pharmacology that considers historical development of concepts, radioligand receptor binding, drug-receptor interactions, receptor characterization and isolation, and signal transduction. P: PHS 601; BCH 600 or DC.
- PHR 715 Advanced Pharmacology** (3) II, OD
Discussion of recent advances in the pharmacology of cardiovascular, autonomic and central nervous systems. Comprehensive review of drug classes including discussions on possible mechanisms by which drugs produce functional effects in these systems. P: Gr. stdg.; PHR 631; or DC.
- PHR 717 Molecular Biology in Pharmacology** (2) I, OD
A survey course in molecular biology and relevant techniques. The course is geared to pharmacologists and others in medical and scientific fields seeking fundamental knowledge of this area. The goal is to provide an understanding of the theoretical and practical aspects of molecular biology for use in research. P: DC.
- PHR 750 Research Discussions in Pharmacology** (1) I, II
Students will meet with their course director once weekly to discuss laboratory research topics as assigned by the course director. Topics will usually be pertinent to the research activity of the course director. Instruction will be given through a combination of didactics, small group sessions, student presentations and independent study. P: DC
- PHR 760 Research Rounds in Pharmacology** (1) I, II
This course will teach students how to formally present their research progress and results, and will provide students with frequent feedback by faculty members and fellow students. P: DC.
- PHR 790 Research Methods in Pharmacology** (1-5) I, II, S (OD)
Laboratory rotations in which graduate students perform or observe methods used in pharmacological research. The value of the method and its application to the research efforts of the pharmacology faculty are described in detail. P: DC.
- PHR 791 Pharmacology Seminar** (1) I, II
Seminar in selected subjects for pharmacology graduate students. P: DC.
- PHR 797 Master's Directed Independent Research** (Credit by arrangement) I, II, S
Supervised original research. P: DC.
- PHR 799 Master's Thesis** (1-6) I, II, S
Review of the literature and research data; writing of the thesis. Student must register for this course in any term when engaged in formal preparation of the Master's thesis; however, six credit hours are the maximum applicable toward the degree. P: DC.
- PHR 897 Doctoral Directed Independent Research** (Credit by arrangement) I, II, S
Supervised original research. P: DC.
- PHR 899 Doctoral Dissertation** (1-6) I, II, S
This investigative work is the principal area of research carried out by the candidate during doctoral studies. It is conducted under the direct supervision of the candidate's major adviser and dissertation committee in preparation for the doctoral dissertation. Twenty credit hours are the maximum applicable toward the degree. Students will register for this course during formal preparation of the doctoral dissertation. P: PHR 897.

PHILOSOPHY (PHL)

Professors Murray (Chair), John Carlson, Feezell and R. White; *Associate Professors* P. Fleming (Associate Dean, Arts and Sciences), K. Graham, Schuler, Selk and W. Stephens; *Assistant Professors* Abrams, M. Brown, Cooke, Haley, Montag, and Yuan; *Adjunct Instructor* Hendrickson; *Lecturers* Conces and Mohr.

Philosophy is not offered as a graduate major. However, the following philosophy course may, with the approval of the major adviser, be included as specified in certain graduate degree programs offered by various other departments.

PHL 593 Advanced Readings in Philosophy (1-4) OD

Independent readings course worked out individually for the student. May be repeated to a limit of six hours.

PHYSICS (PHY)

Associate Professor Kennedy (Chair); *Professors* Cherney, Cipolla (Program Director) and Zepf; *Associate Professors* Seger; *Assistant Professors* McShane, and Nichols; *Adjunct Instructor* Sakrejda.

Program and Objectives

Master of Science (M.S.) Program

At Creighton University the graduate program in Physics is flexible and designed to combine a solid grounding in Physics with adaptability to a wide range of student interests and career objectives. There is a close association of students and faculty that facilitates responsiveness to the needs of each student. Graduates of four-year liberal arts colleges are of special interest to the Physics faculty, as are secondary-school and junior-college teachers who wish to enrich their background in physics. Late afternoon scheduling of most classes makes it possible for working students to advance toward the M.S. degree on a part-time basis.

Prerequisites for Admission

In general, properly prepared students will have undergraduate preparation in physics comparable to the present minimum Physics degree requirements at Creighton University. This must include upper-division course work covering each of the following categories: mechanics, electromagnetics, and modern physics. Additional work in physics to bring the total to twenty-four semester hours, plus support from mathematics, is needed.

The Graduate School requires all students from countries in which English is not the native language to demonstrate competence in English by a score of 550 or 213 on the Computer-Based Test (CBT) in the TOEFL (Test of English as a Foreign Language) examination.

General Requirements

Flexibility is achieved within the Graduate Division of the University through two types of Master's programs — Plan A (with thesis) and Plan B (without thesis) — and within the Physics Department through the further tailoring of these programs to the needs of the individual student.

All Physics graduate students at Creighton, whether in a Plan A or a Plan B program, take the following four courses: PHY 611 — Classical Mechanics; PHY 621 — Electromagnetic Theory; PHY 631 — Quantum Mechanics I; and PHY 641 — Statistical Mechanics. These “core courses” are designed to provide an advanced understanding of concepts, principles, and methods in the fundamental areas of Physics. In building around this core, there is considerable latitude in the choice of course work to complete the Master's degree program.

The Master's program is designed to be completed by full-time students in two academic years or less.

Special Requirements

Physics graduate students individually arrange their graduate programs in consultation with their adviser. Course electives may be selected with the consent of the adviser. These courses normally come from the areas of atmospheric sciences, mathematics/computer science, chemistry, or biology.

- PHY 521 Electronics for Scientists (3) I**
Basic course in electronics. Laboratory experiments include an introduction to measuring instruments, solid state components, and digital and logic circuits. Lecture closely follows the experiments. 1R, 5L. P: PHY 212.
- PHY 531 Quantum Mechanics (3) II**
Wave-packet representation of particles; development of the formalism of quantum mechanics; applications to the harmonic oscillator, the hydrogen atom, square-well potential, and scattering. P: PHY 301 & 471.
- PHY 541 Thermodynamics and Statistical Mechanics (3) II**
Laws of thermodynamics, thermodynamic variables, thermodynamic potentials; kinetic theory, distribution functions, classical and quantum statistics. P: PHY 212 or CHM 331; MTH 246.
- PHY 551 Mathematical Physics (3) II**
Mathematical methods for the representation of physical processes in space and time. Fourier and other complete representations; vector calculus; tensors and matrices. Selection and emphasis on topics keyed to needs of students enrolled. P: PHY 212; MTH 347.
- PHY 558 Relativity: The Special and General Theories (3) S (OD)**
Review of classical relativity (frames of reference); Einstein's special theory of relativity (length contraction, time dilation, mass dependence on speed, $E = mc^2$); Einstein's general theory of relativity (gravity, equivalence of gravitation and acceleration, deflection of light, time effects). P: PHY 212; MTH 246.
- PHY 561 Nuclear Physics (3) I**
Application of elementary quantum mechanical theory and relativity to the study of nuclear structure, radioactive decay, and nuclear models. P: PHY 531.
- PHY 562 Nuclear Instruments and Methods (2) I**
Laboratory work in nuclear physics designed to teach the methods and procedures of experimental nuclear physics at an advanced level and to familiarize the student with modern research equipment and its use. 3L. P: PHY 302 or IC.
- PHY 563 High Energy Nuclear Physics (1) OD**
Students will read and discuss original journal articles related to the historical development of high energy physics. P: PHY 212; MTH 246; or IC.
- PHY 571 Solid State Physics (3) II**
Introduction to the theory of the solid state based on quantum mechanics. Crystal structure and symmetry, lattice dynamics, free electron model, and band theory of solids. P: PHY 531.
- PHY 572 Solid State Laboratory (1) II**
Laboratory work in solid state physics including x-ray crystallography. 3L. CO: PHY 571 or IC.
- PHY 585 Teaching of Physics (3) I**
Objectives and functions of the teaching of science in terms of secondary-school learning experiences. Attention is directed to the selection, organization, and presentation of meaningful materials; selection, use and evaluation of textbooks and related aids. Specific application of course material to physics through independent projects. Meets

concurrently with EDU 445. Students are expected to complete all of the course work of EDU 445 and complete an additional independent project. CO: EDU 341 and 342.

- PHY 595 Special Topics (3) OD**
A course treating physics topics of special interest. The course will be subtitled in the Schedule of Classes and may be repeated under different subtitles. P: IC.
- PHY 611 Classical Mechanics (Core Course) (3) I**
Variational principles, Lagrange's equations, two-body central force motion, rigid-body motion, transformations, small oscillations.
- PHY 621 Electromagnetic Theory (Core Course) (3) II**
Electromagnetic fields, application of Maxwell's equations to electromagnetic waves and their interaction with matter.
- PHY 631 Quantum Mechanics I (Core Course) (3) II**
Development of the formalism of quantum mechanics with applications to simple systems.
- PHY 632 Quantum Mechanics II (3) OD**
Applications of quantum mechanics to current fields of interest. P: PHY 631.
- PHY 641 Statistical Mechanics (Core Course) (3) I**
Review of thermodynamics, classical and quantum statistical theory, applications to current fields of interest.
- PHY 652 Advanced Mathematical Methods (3) OD**
Small oscillations, transformations, special functions, boundary value problems. P: MTH 347.
- PHY 785 Practicum in College Teaching (3) OD**
Practical experience in the observation and conduct of classroom and laboratory teaching on the college level. Experience obtained under the immediate supervision of senior members of the Department of Physics. Required of all teaching assistants in the department. 9L, 1C.
- PHY 790 Research Methods (2) OD**
Introduction to current research in Physics.
- PHY 791 Graduate Seminar (1) I, II**
Oral presentation and critical discussion of subjects in physics or related fields by invited speakers, faculty, and students.
- PHY 793 Directed Independent Readings (1-3) I, II, S**
Advanced instruction in areas of special interest to the faculty, such as the following: atomic physics, nuclear physics, particle physics, solid state physics, surface physics, statistical mechanics, foundations of physics; biophysics. P: IC.
- PHY 795 Directed Independent Study (1-3) I, II, S**
Advanced study in a specific area of interest to the faculty. P: IC.
- PHY 797 Directed Independent Research (1-3) I, II, S**
An independent research project under the guidance of a member of the faculty. Weekly conferences. Written report of work required at the end of each semester. P: IC.
- PHY 799 Master's Thesis (1-3) I, II, S**
Research in connection with the preparation of the Master's thesis. Students must register for this course in any term when engaged in formal preparation of the master's thesis; however, six credit hours are the maximum applicable toward the degree. P: DC.

PHYSIOLOGY

See Department of Biomedical Sciences

POLITICAL SCIENCE AND INTERNATIONAL STUDIES (PLS)

Professor Wunsch (Chair), Clark; Associate Professors Crawford, Evans, Meeks, and Wise; Assistant Professors Ramsden.

Political Science is not offered as a graduate major. However, the following Political Science courses may, with the approval of the major adviser, be included as specified in certain degree programs offered by other departments and the graduate program in International Relations.

PLS 537 International Law (3) I, AY (Same as INR 537)

Contemporary nation-states are creations of international law. Course engages the many controversies over who is subject to this law, how the law is created and enforced, and the relationship of international law and international politics. Didactic and case-study approach. Substantial research and writing. P: Jr. stdg.

PSYCHOLOGY (PSY)

Professors Ware (Chair) Leak; Associate Professors Budesheim, Lupo, and Stone; Assistant Professors Badura, Cherney, Cooney, Finken, Gibson and Huss; Professor Emeritus Gardner, Associate Professor Emeritus Dahl.

Psychology is not offered as a graduate major. However, the following Psychology courses may, with the approval of the major adviser, be included as specified in certain graduate degree programs offered by other departments.

PSY 540 Introduction to Counseling (3) I, S (Same as COU 540)

A survey of the counseling process including the role of the counselor, characteristics of clients, helping and referral skills, and theories of counseling. P: Jr. stdg.

PSY 793 Directed Independent Readings (3) I, II, S

Intensive reading in an area approved by the instructor. P: IC.

PSY 795 Directed Independent Study (1-3) I, II, S

Independent project designed by the student with the approval of the instructor. P: IC.

SOCIAL WORK (SWK)

Associate Professor Grandbois (Chair); Assistant Professors Anderson and Harris.

Social Work is not offered as a graduate major. However, the following Social Work courses may, with the approval of the major adviser, be included as specified in certain graduate degree programs offered by various other departments.

SWK 505 Multidisciplinary Interventions With Families of Exceptional Children and Youth (3) I, II, S (Same as EDU 505)

Course designed to address the needs of families of exceptional children and youth and train the support personnel who work with exceptional children. P: Jr. stdg.; EDU 501.

SWK 571 Working With Troubled Families (3) S (Same as EDU 571, COU 571)

Designed to give participants an understanding of family dynamics; why troubled families remain troubled; how intervention can help a family overcome its difficulties. Theoretical presentations and exercises relating to these presentations with opportunities for class discussion of both. P: Jr. stdg.

STATISTICS (STA)

*Professor Cheng (Chair, Department of Mathematics/Computer Science);
Associate Professor Fong.*

Statistics is not offered as a graduate major. However, the following Statistics courses may, with the approval of the major adviser, be included as specified in certain degree programs offered by various other departments. See the Department of Mathematics for a model plan of study in Statistics.

- STA 521 Computational Methods in Statistics (3) OD**
Use of packages of statistical programs, calculation of statistical tables. Monte Carlo methods. P: A course in statistics; CSC 113 or 221.
- STA 525 Nonparametric Methods (3) OD**
Applications of nonparametric estimates, confidence, intervals, tests, and multiple comparison procedures. P: A course in statistics.
- STA 527 Sample Surveys (3) OD**
Simple, systematic, stratified, and cluster random sampling; proportions; ratios; selection of sample size. P: A course in statistics.
- STA 561 Mathematical Statistics I (3) (Same as MTH 561)**
Introduction to probability and probability distributions including techniques for finding expected values and variance of discrete and continuous variables. These distributions and their properties are examined to establish their application to applied statistical methods. P: MTH 246.
- STA 562 Mathematical Statistics II (3) (Same as MTH 562)**
Using probability distributions as a foundation and random sampling, methods for estimating distribution parameters are developed with applications to hypothesis testing. The course also includes an introduction to linear models, regression analysis, analysis of variance and design of experiments. P: STA 561.
- STA 563 Mathematical Statistics III (3) OD (Same as MTH 563)**
Optimal decision procedures, further normal distribution theory, noncentral chi-square and F distributions, introduction to the theoretical basis for analysis of variance, nonparametric methods. P: STA 562.
- STA 567 Linear Statistical Models (3) I OD**
Least squares method; general linear hypothesis; multiple correlation and regression; analysis of covariance. P: STA 363 or 561; MTH 523 or 529.
- STA 569 Analysis of Variance and Design of Experiments (3) II OD**
One- and two-way classifications; blocking; nesting; multiple comparisons; incomplete designs; variance components; factorial experiments; confounding. P: STA 363 or 561.
- STA 571 Linear Programming (3) II OD (Same as MTH 571)**
Introductory course in operations research. Linear models and solutions using the simplex method, duality theory and sensitivity analysis. P: MTH 523 or 529.
- STA 573 Probabilistic Models (3) II OD (Same as MTH 573)**
Queuing theory, inventory theory, Markov processes, simulation, and nonlinear programming. P: STA 561.
- STA 575 Introductory Stochastic Processes (3) II OD (Same as MTH 575)**
Random walk, normal processes and covariance stationary processes, counting processes and Poisson processes, renewal counting processes, discrete and continuous parameter Markov chains. P: STA 561.
- STA 577 Applied Multivariate Analysis (3) OD**
Inference about mean vectors and covariance matrices, canonical correlation, principal components, discriminant analysis, cluster analysis, computer techniques. P: STA 563, 567.

- STA 579 Applied Time Series Analysis (3) OD**
Forecasting; Box-Jenkins models; time series; regression; exponential smoothing; transfer function models; auto covariance functions. P: STA 561.
- STA 601 Statistics in Application (3) OD**
Estimation, tests of hypotheses, basic experimental designs, least squares, regression and correlation. Some nonparametric techniques. Graduate credit for nonmathematic majors only.
- STA 625 Nonparametric Statistical Models (3) II OD**
Applications of nonparametric estimates; confidence intervals; tests; multiple comparison procedures. P: MTH 562 or equiv.
- STA 627 Sampling Survey (3) OD**
Sampling distribution theory; simple random sampling; stratified random sampling; systematic sampling; cluster sampling; ratio; regression; difference estimation; selection of sample size; population size estimation.
- STA 653 Reliability Theory (3) I OD (Same as MTH 653)**
Structured properties of coherent systems; reliability of coherent systems; classes of life distributions based on notions of aging; maintenance and replacement models; limiting distributions of coherent system life.
- STA 663 Applied Time Series Analysis (3) OD (Same as MTH 663)**
Stochastic processes; autocovariance functions; estimation in autoregressive and moving average processes; the spectrum; spectral estimator. P: MTH 562 or equiv.
- STA 667 Linear Statistical Models (3) OD**
Least squares method; general linear hypothesis; multiple correlation and regression; analysis of covariance. P: MTH 562 or equiv. and MTH 529 or equiv.
- STA 669 Advanced Analysis of Variance and Design of Experiments (3) OD**
One- and two-way classifications; blocking; nesting; multiple comparisons; incomplete designs; variance components; factorial experiments; confounding. P: MTH 562 or equiv.
- STA 675 Stochastic Processes (3) II, OD (Same as MTH 675)**
Normal processes; covariance stationary processes; counting processes; Poisson processes; renewal counting processes; Markov chains. P: MTH 562 or equiv.
- STA 683 Applied Multivariate Analysis (3) OD**
Inference about mean vectors and covariance matrices, canonical correlation, principal components; discriminate analysis.
- STA 793 Directed Independent Readings (3) OD**

THEOLOGY (THL)

Professors Hauser (Program Director), Lawler (Graff Chair in Catholic Theological Studies), Hamm, Malina, and Wright; *Associate Professors* Fleming, Mueller, O'Keefe (Chair), Reno, Salzman, Shanahan, and Simkins; *Assistant Professors* Calef, Ehle, Kelly, Roddy, Schissel, and Weber.

Master of Arts with a Major in Theology/Master of Arts with a Major in Ministry

The graduate programs in theology and in ministry both engage Christians of all denominations in intensive investigations of developments in the major areas of contemporary theology: Biblical Studies, Systematic Studies, Liturgical and Christian Life Studies (Moral Theology and Spirituality).

The graduate program in theology is designed to provide a broad overview of the major areas of contemporary theology and an in-depth concentration in one area of theology chosen by the student. The program is intended for students preparing for

doctoral studies, for the growing number of professionals engaged in theological and ministerial activities in parishes and schools, and for lay people seeking to further their theological education.

The graduate program in ministry is designed to provide both a broad overview of the major areas of contemporary theology and an in-depth concentration and training in a specific area of Christian ministry chosen by the student.

While respecting and exposing students to other religious traditions, Creighton University, a Catholic and Jesuit university, conducts its theological inquiries within the Catholic-Christian tradition.

Inquiries about the programs should be directed to The Director, Graduate Programs in Theology and Ministry, Department of Theology, Creighton University, Omaha, NE 68178.

Prerequisites for Admission to Either Program

Entry into the program requires a bachelor's degree from an accredited institution with a minimum of eighteen (18) semester hours of credit in theology or equivalent. Applicants should also have a B average in their undergraduate work and adequate Graduate Record Examination scores.

The Graduate School requires all students whose native language is not English to demonstrate competence in English with a score of 550 or 213 on the Computer-Based Test (CBT) in the Test of English as a Foreign Language (TOEFL) examination.

Requirements for the Master of Arts in Theology

Students will be assigned a graduate adviser and, in conversation with the adviser, will choose a program of study best suited to their interests and career plans. Thirty-three (33) semester hours are required for the degree, including Plan A: 27 hrs. of courses plus 6 hrs. of THL 799; Plan B: 33 hrs. of courses.

The courses for the Master of Arts in Theology

Three required courses: 9 credit hours

THL 703 The Social and Historical Context of the Bible

THL 731 Systematic Theology: The Mediated God

THL 733 Images of the Church Through the Ages

Three area courses: 9 credit hours

One course (3 credit hours) in Biblical Studies

One course (3 credit hours) in Historical/Doctrinal/Liturgical Studies

One course (3 credit hours) in Christian Life Studies

Elective courses: 9 or 15 credit hours:

Three courses (9 credit hours) Plan A

Five courses (15 credit hours) Plan B

Thesis Required for Plan A:

THL 799 Master's Thesis (6 credit hours)

Requirements for the Master of Arts in Ministry

Students will be assigned a graduate adviser and, in conversation with the adviser, will choose a program of study best suited to their interests and career plans. Thirty-three (33) semester hours are required for the degree, including three in THL 798: Pastoral Synthesis.

The courses for the Master of Arts in Ministry

Five required courses (15 credit hours):

- THL 703 The Social and Historical Context of the Bible
- THL 731 Systematic Theology: The Mediated God
- THL 733 Images of the Church Through the Ages
- THL 560 Theology of Ministry
- THL 792 Practicum in Ministry

Elective Courses (15 credit hours):

Five courses to be selected, in conversation with the graduate adviser, from the three areas of Biblical Studies, Historical-Doctrinal-Liturgical Studies, Christian Life Studies. The student may also select, with the consent of the graduate adviser, courses which are outside the Department of Theology but pertinent to the student's intended ministry.

Required Pastoral Synthesis (3 credit hours):

- THL 798 Pastoral Synthesis

Biblical Studies

THL 501 The Pentateuch (3) OD

Origin and composition of the first five books of the Bible. Historical and theological traditions contributing to their formation. Emphasis on their unique theology and on the use of the books in the New Testament period.

THL 502 Old Testament Themes (3) OD

In-depth study of the themes of covenant and community as they are developed in the Pentateuch and in Prophetic and Wisdom Literature. A survey of contemporary scholarship will support a careful study of the pertinent texts.

THL 503 The Prophetic Literature of the Old Testament (3) OD

The uniqueness of the prophetic movement. Background literary styles, relevance of the prophetic message.

THL 504 The Wisdom Literature of the Old Testament (3) OD

Study of the patterns of Proverbs, Job, Ecclesiastes, some of the Psalms, compared with the wisdom literature of other ancient peoples.

THL 507 Gospel of Matthew (3) OD

A study of the theological vision of the text of this gospel, using all available methods and resources: redaction criticism, composition criticism, narrative criticism, etc.

THL 508 The Gospel of Mark (3) OD

A study of the first written gospel, its outline and structure, authorship, sources and influence on later New Testament writings.

THL 509 The Gospel of Luke and the Acts of the Apostles (3) OD

Study of Luke-Acts as a two-volume whole—a work of history, theology, and literary artistry.

THL 511 The Gospel of John (3) OD

Study of the unique witness to the meaning of Jesus in the Johannine Gospel.

THL 514 The Pastoral Epistles (3) OD

The first attempts to weld Christianity and Western humanism as initiated in the Epistles to Timothy and Titus.

THL 516 The Book of Revelation (The Apocalypse) (3) OD

A contemporary scholarly interpretation of the book of Revelation with reference to contemporary apocalyptic.

- THL 517 The Parables of Jesus (3) OD**
Stories that formed the core of Jesus' preaching. How he told them. How the evangelists retold them. How we understand them today.
- THL 518 Women and the Bible (3) OD**
Study of the representations of women in biblical narratives; attention to the construction of gender in the ancient world. Introduction to the various approaches contemporary women are taking to these biblical texts.
- THL 520 The Dead Sea Scrolls (3) OD**
Introduction to the Dead Sea Scrolls and various theories about their origin. Exploration of the light they shed on the textual history of the Hebrew Bible, developments in ancient Judaism, and the early history of Christianity.
- THL 524 History of Ancient Israel (3) OD**
An examination and reconstruction of the history of ancient Israel from biblical and other ancient New Eastern literary texts, and from archaeological and epigraphic materials.
- THL 525 Archaeological Field Work and Analysis (3)**
The student learns the principles of stratigraphic archaeology (or underwater archaeology) by participating in an excavation for a minimum of four weeks. The student will learn stratigraphic theory and excavation strategy, basic archaeological techniques, and the basic analysis of archaeological materials recovered from the site. (Underwater archaeologists will learn basic underwater techniques in place of some terrestrial methods.)
CO: THL 526
- THL 526 Archaeology of Roman Palestine (3)**
This is a study of ancient Palestine from the rise of the Herodian dynasty in the first century B.C.E. to the aftermath of the Muslim conquest in the seventh century C.E. The material of the course is the physical remains of archaeological sites throughout modern Israel, along with movable cultural remains that issued from these sites. The major focus of the course will be the interaction between Classical Mediterranean civilization on the one hand, and the Jews and other Middle Eastern peoples on the other, in the age that yielded Rabbinic Judaism, Christianity and Islam. CO: THL 525.
- THL 527 Study Tour of Biblical Israel (3) S**
Two-week guided tour of the biblical sites in Israel. Typical sites: Caesarea Maritima, Sea of Galilee, Tiberias, Bethsaida, Capernaum, Tabgha, Jordan River, Sepphoris, Megiddo, Nazareth, Mt. Tabor, Hazor, Tel Dan, Caesarea Philippi, Tel Bet Shean, Jericho, Judaean Wilderness, Mt. of Olives, Bethlehem, Jerusalem, Masada, and Qumran. A biblical scholar accompanies the group, supplementing local guides. Requirements include readings before trip, written reflections afterward.
- THL 528 The Septuagint (3) II (Same as Greek 528)**
Readings from the Greek Old Testament, commonly known as the Septuagint (LXX); study of its cultural and religious background.
- THL 529 Translations of the Bible (3)**
Various ancient translations of the Bible and their significance.

Historical-Doctrinal-Liturgical Studies

- THL 530 Contemporary Catholic Theologians (3) OD**
Key themes in the thought of Rahner, Conger, De Lubac, Lonergan, and other contemporary Catholic theologians.
- THL 531 Studies in Early Christianity (3) I OD**
This course will study the emergence of early Christian theology through the writing of the theologians of the first 500 years of the Church's history. Attention will be given to some of the following themes: the development of the doctrine of the Trinity, the emergence of Classical Christology, early Christian exegesis, the thought of St. Augustine.

- THL 535 Doctrinal Development: Christology (3) OD**
Development of the Christian community's understanding and teaching about the person and work of Jesus Christ.
- THL 537 Doctrinal Development: Sin and Grace (3) OD**
Development of the Christian community's understanding and teaching about the mysteries of grace and sin.
- THL 544 Christian Celebration: The Liturgical Year (3) OD**
Biblical origins and historical development of feast and season, e.g., Christmas and Easter. The theologies of the saints' days and celebrations. History and meaning of daily common prayer in the Church.
- THL 545 Liturgy and Christian Life (3) OD**
The historical development of Western Liturgy and its technological interpretation through the centuries. Emphasis on the saving presence of Christ and on the role of liturgy in the rest of Christian life.
- THL 550 History of the Christian Church (3) II**
Survey of the intellectual, ecclesiastical and political developments which shaped Christianity through two millennia. Exploration of complex relations among beliefs, institutions, and practices which constitute Christian history.

Christian Life Studies

- THL 560 Theology of Ministry**
Through historical investigation of the practice of ministries in the western church from earliest times to the present, this course aims to arrive at some systematic conclusions about the nature of ministry.
- THL 561 Finding God in Daily Life: Prayer and Discernment (3) OD**
General introduction to Christian spirituality with emphasis on personal prayer. Goal is to improve the quality of Christian living and praying through better understanding of their internal dynamics. Course focuses on the theology of the Holy spirit, spirituality of Thomas Merton, mysticism and discernment of spirits. Students are expected to practice techniques presented in class.
- THL 563 Contemporary Moral Problems (3) OD**
A comprehensive study of one or more moral issues facing contemporary society.
- THL 565 Catholic Social Teaching (3) OD**
Historical development of Catholic social teaching from the 1891 publication of "The Condition of Labor" to the present. Students are encouraged to apply the core insights of the tradition to contemporary issues.
- THL 567 Ethical Issues in Health Care (3) OD**
Inquiry into the values and ethical problems of modern medicine from the viewpoint of Christian theology.
- THL 568 Women in the Christian Tradition (3) OD**
Study of the outlook on man, woman, and divinity in the Bible, the Christian churches past and present, and "post-Christian" feminism. Examination of the Judeo-Christian tradition, both the pervasiveness of its patriarchal assumptions, and the liberating resources it can contribute to a healthy understanding of maleness and femaleness today.
- THL 572 Ethics and Spirituality (3) OD**
Consideration of the diverse spiritual traditions of Christianity to see asceticism, prayer, contemplation and discernment as categories which bridge spirituality and ethics. The traditional strands of Christian spirituality as resources for the contemporary life of faith and action. Readings from John of the Cross, Kierkegaard, Kenneth Kirk, Dorothy Day, Merton, Barth and Rahner.

- THL 580 Christianity and Modern Humanism (3)**
Comparative study of classical Christian accounts of the human condition and various modern, post-theological accounts.
- THL 585 Foundational Principles and Leadership Skills for Youth Ministry (3) OD**
The foundational understandings and principles of comprehensive youth ministry; a deeper understanding for the minister of the theological foundations of Youth Ministry. Theories, skills and approaches for effective leadership in ministry.
- THL 586 Fostering the Faith Growth of Youth Through the Components of Youth Ministry (4) OD**
Exploration of adolescent spirituality, theological and spiritual foundations for engaging young people in the work of justice and service, theological understandings of faith, discipleship, and Catholic identity, and caring for young people and their families.
- THL 590 Contemporary Religious Education: Theory and Practice (3) I**
Overview of the principles for communicating the Christian message effectively to different age levels with opportunities to observe and put them into practice. May be taken in lieu of EDU 449.
- THL 660 Dreams and Spiritual Growth (1) S**
This course will explore the significance of dreams in discerning spiritual growth. Some attention will be given to the role of dreams in scripture and Christian tradition. The primary aim of the course is to familiarize participants with the psychology of dreaming and with contemporary methods for discerning the religious meaning of one's dreams: in one's own spiritual growth and development as well as in working with dreams in the context of spiritual direction.
- THL 661 T'ai Chi Chih: Joy through Movement (1) S**
T'ai Chi Chih's body movement meditation releases stress by relaxing the body and refreshing the mind. The twenty simple movements can be done by all regardless of age and physical condition.
- THL 662 Chi-Kung Moving Meditation: Embodying Spiritual Attentiveness (1) S**
An introduction for Christians to an ancient system of movements developed by Chinese hermits and contemplatives in order to harness and order the body's energies, thereby providing a positive role for the body in spiritual development. This class is also open to students enrolling as auditors.
- THL 664 Spirituality of John (1) S**
Course examines themes from writings of John central for spirituality.
- THL 666 Centering Prayer and the Experience of God (1) S (Same as CSP 666)**
Contemplative practices such as *Lectio Divina* and Centering Prayer, which directly cultivate the experience of God's presence and extend the interior silence of prayer into daily life. Additional topics include prayer as relationship, the experience of the Dark Night, and fruits of contemplative prayer in daily activity.
- THL 667 Masculine Spirituality (1)**
Reflection on issues in Christian spirituality of particular relevance to men.
- THL 668 Feminine Spirituality (1)**
Reflecting on issues in Christian spirituality of particular relevance to women.
- THL 669 Salesian Spirituality (1-3) S**
Introduction to the Salesian spiritual tradition co-founded in 17th century by Francis de Sales and Jeanne de Chantal. Seminal texts such as *Introduction to the Devout Life* as well as the lives of the founders as backdrop for exploration of central Salesian themes as resources for contemporary living.
- THL 670 Art and Spirituality (1-3) OD**
With an experiential, hands-on format using watercolor and other art media, this course provides an opportunity for right-brain expressions of prayer, spiritual understanding, and experience of God.

THL 672 Text and Context: A Study of the Bible in Transmission and in Translation (3)
The Bible, both Old Testament (or Hebrew Bible) and New Testament, has been transmitted (that is, copied in original languages) and translated (into other languages) more than any other document from antiquity. This course will focus on the social, political, historical, religious, even technological circumstances in which this activity has been conducted for more than two millennia, exploring how the texts reflect both the contexts of the copyists and translators, their own society and their understanding of the sacred texts with which they worked.

THL 673 Spiritual Dialogue: East Meets West (3) OD
Overview of perspectives and practices from Eastern wisdom that have parallels in Christianity and can deepen prayer experiences, as well as Eastern ideas that challenge Christian beliefs.

THL 674 Living with the Dying (1-3) S
Story-based exploration of the psycho-social and spiritual issues presented by the dying and their families; challenges to the professional caregiver and minister to the dying and grieving; identifying, recognizing and planning helpful interventions regarding Nearing Death Awareness, the symbolic language of the dying, as well as anticipatory and complicated grief issues. Students will assess their own comfort level with death and dying.

Biblical Studies

THL 701 Biblical Interpretation: Hermeneutics in the Writing and in the Reading of Scripture (3) OD
A study of the ongoing interpretive process that first formed the Judeo-Christian biblical traditions and then made use of those traditions in the development of the post-canonical tradition. First, how the Bible was made; then, what was made of the Bible. Implications for interpreting Scripture today.

THL 702 The Gospel of Mark (3) OD
In-depth study of earliest gospel, using historical, literary, and theological perspectives. Special attention to Mark's use of the Old Testament, his interpretation of Jesus and the Church, and the implications for using this text for Christian life and worship today.

THL 703 The Social and Historical Context of the Bible (3) OD
An examination of the social and historical world out of which the texts of the Bible were written.

THL 704 Contemporary Biblical Interpretation: The Synoptic Gospels (3) OD
Investigation of the two main approaches to biblical interpretation, the historical critical method and the literary aesthetic method, and of the specific theories of reading from which they derive. Reasons for following the scenario model of reading. Methods applied to selected Synoptic passages and to selected statements of church councils to test their ramifications.

THL 705 New Testament Churches (3) OD
Study of realities of first-century church life expressed and implied in the canonical documents, e.g. the church of Mark, of Matthew, of John, of Luke-Acts, of Hebrews, of 1 and 2 Corinthians. In what ways are these New Testament images of first-century church life normative for church life today?

THL 706 The Gospel of Matthew (3) OD
An in-depth exploration of the Gospel of Matthew using a variety of methods, especially redaction criticism and narrative analysis. Special attention to Hebrew Bible background.

THL 707 Luke-Acts (3) OD
A close reading of Luke's two-volume continuation of the story of Israel in the stories of Jesus and the church. Special attention to the Third Evangelist's retelling of Mark and his understanding of God's working through the church.

THL 708 Paul: The Major Writings (3) OD
Study of Galatians, Romans, and the Corinthian correspondence, with special attention to their literary forms and their implied pastoral settings.

THL 709 The Gospel of John: Contemporary Approaches (3) OD

An investigation into the framework of John and exegesis of select text-segments in terms of Johannine source criticism, historical criticism and socio-linguistics, viewing the gospel as a prime example of anti-language.

THL 710 The Mediterranean Matrix of Christian Theology (3) OD

Christian theology has most often been articulated in analogies taken from the Mediterranean world and Mediterranean social experience: God the Father, Trinity, Grace, Salvation, Mediation, Patron Saint, Holiness and the like rank among such analogies. This course investigates the cultural and contextual meanings of these analogies, not as sets of abstract philosophical ideas, but as the vibrant social metaphors they originally were. Comparative scenarios describing the culture(s) of the Mediterranean basin are presented. The aim is adequate interpretation of what these originally meant in their Mediterranean setting, with parallel developments in Judaism and Islam.

THL 711 Israelite Religion in Perspective (3) OD

The development of the religion of Israel will be studied from its origins to the time of Jesus. Emphasis will be placed on the relationship between Israel's religion and the religion of her Near Eastern neighbors, and on its continuities and discontinuities with the Christian faith.

THL 712 Creation and Ethical Order (3) OD

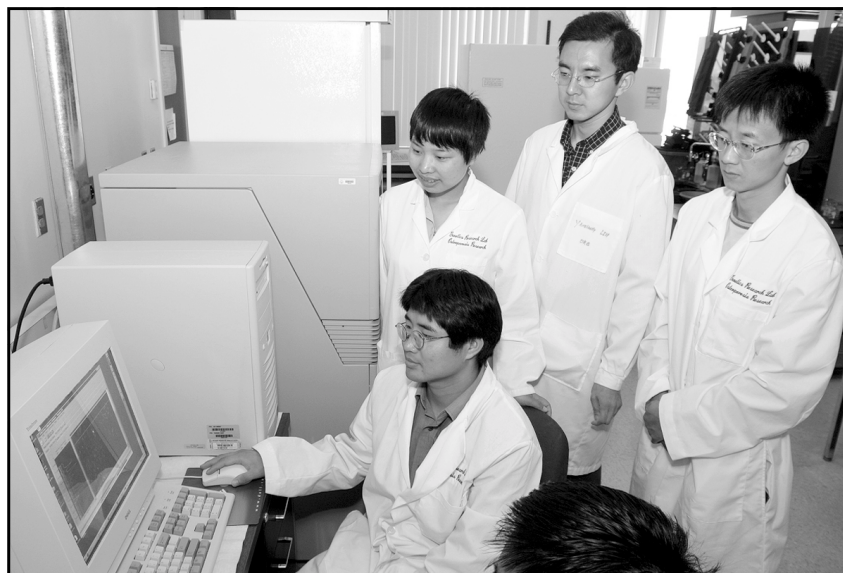
The biblical views of creation will be studied and compared with ideas of creation in other cultures, ancient and modern. Emphasis will be placed on the role creation plays in structuring societal values and defining the meaning of existence.

THL 713 Liberationist Readings of New Testament Texts (3) OD

The perennial hermeneutical issue - how one interprets, understands, and uses past traditions in the present - addressed from a liberationist perspective. Introduction to hermeneutical theory followed by examination of readings of New Testament texts from diverse liberationist perspectives: South African, Latin American, feminist, and womanist.

THL 714 The Pentateuch: Issues of Ethics and Morality (3) OD

A textcritical study of human behavior in the narratives of the Pentateuch focusing on the Book of Genesis. These stories are examined in light of their ancient Near Eastern sociohistorical context to better understand their often strange, sometimes disturbing plots and to discern their timeless and universal themes.



Historical-Doctrinal-Liturgical Studies

- THL 731 Systematic Theology: The Mediated God (3) OD**
This course examines systematically: (a) the mediating function of symbol in a human life; (b) theology as humankind's search to mediate the Transcendent in symbolic language; (c) Christology as Christian humankind's search to mediate the Transcendent in Jesus called *christos*; (d) ecclesiology as Christian humankind's search to mediate the Christ in the community of women and men called *ekklesia*; (e) sacramentology as Christian humankind's search to mediate the Transcendent in solemn symbolic actions called *mysteria*.
- THL 732 Theologies of Salvation (3) OD**
A theological reflection on the question: "What does it mean to be saved in Jesus Christ?" In dialogue with biblical, traditional and contemporary insights, including liberationist, feminist and ecologically sensitive theologies, students are asked to propose a theology of salvation relevant to contemporary life.
- THL 733 Images of the Church through the Ages (3) OD**
The kaleidoscopic journey of the pilgrim church through successive historical paradigms—from primitive Christianity's apocalyptic paradigm, to the post-modern ecumenical paradigm, including the Hellenistic, medieval-Roman-Catholic, Reformation-Protestant, Counter-Reformation Catholic, Protestant-Orthodox, and Modern-Enlightenment paradigms. Salient images of the church within each of these historical paradigms and movements accompanying them.
- THL 734 The Quest for Christian Identity (3) OD**
The meaning of being Christian in contemporary times within American society.
- THL 736 Systematic Theology According to Karl Rahner (3) OD**
Theological methodology of one of the premier Catholic theologians of the twentieth century: Karl Rahner's thought as foundational for much of contemporary Roman Catholic theology. Topics include: the human family and its relationship to mystery (Sin and Grace); the theology of symbol—how the mystery of grace is worked out in our material world (Christology and Ecclesiology); and the life of Grace — the work of the Holy Spirit in our social liberation (Prayer, Discernment, and Ethics).
- THL 737 The Historical Context for Theology in America (3) OD**
Examination of forces that have influenced Catholic theological thought in the United States. Topics that may be explored include denominationalism, church-state relations, civil religion, evangelicalism, fundamentalism, gender, nativism, the African-American experience, Native American experience, Judaism, trusteeism, immigration, social justice, etc.
- THL 740 Inventing Christianity: The Emergence of the Christian Theological Tradition (3) OD**
Course explores development of early Christian theological tradition from its apostolic foundations through the Council of Chalcedon emphasizing four themes: the origin and development of the Christian empire, the search for the Christian doctrine of God, understanding the God-Man, Augustine and his influence.
- THL 744 Christian Social Ethics (3) OD**
Introduction to the major alternative modes of thought and action by which Christians have sought to express concern for social and political issues. Stress on the social dimension of Christian ethics.
- THL 745 Ecumenical Theology: Protestant, Catholic, Orthodox (3) OD**
Examination of post Vatican II ecumenism, from a theological analysis of the problem of church division to the rationale for ecumenical dialogue. Models of ecumenical agreement and progress with special attention to the question of consensus and ecumenical "success". Current topics from Protestant-Catholic and Orthodox-Catholic dialogues are surveyed.

THL 746 Justification and Justice: Jewish, Protestant and Catholic Models (3) OD
Different Models of divine intervention into human life lead to different models of human response. The center of gravity for this course will be the doctrine of justification. Under examination will be the ways in which contemporary theologians articulate the social and political response engendered by the divine initiative in modern life. Four responses come into play: self-transcendence (Niebuhr and Metz), obedience (Ramsey and NCCB), discipleship (Yoder), and dialogue (Buber).

THL 752 The Sacraments of Initiation (3) OD
Study of the anthropological roots, historical formation, and interrelation of the three traditional moments in Christian Initiation: Baptism, Confirmation and Eucharist, in light of the new Rite of Christian Initiation of Adults (R.C.I.A.) as basic text, of official Catholic Church pronouncements, of the Lima Document of the World Council of Churches, and of various contemporary theologies.

THL 753 Liturgy and Time (3) OD
Reflection on the temporal nature of Christian life by study of the historical formation and sacramental dimensions of the liturgical (a) day, (b) week, and (c) year. Topics include: meaning of Christian celebration, origins of Christian daily prayer (the Divine Office), Christ's presence in the Church through liturgical memorial, Sunday and the weekly cycle, the Easter and Christmas cycles, the feast day as Christian sacrament, the Sanctoral Cycle, the reforms of Vatican II, the ethical significance of the liturgical year.

Christian Life Studies

THL 756 Theology of the Moral Life (3) OD
Elements of Christian moral experience and understanding, as well as the criteria of Christian moral judgment and action.

THL 757 Christian Nonviolence: Jesus, Prince of Peace (3) OD
History of peacemaking and non-violence through Christian figures and movements. Biblical roots, pacifism in the early Church, the medieval "peace of God," Reformation peace churches, and recent developments: the 20th century Catholic peace movement, official documents from Christian churches, and Christian leaders including Martin Luther King, Thomas Merton, and Dorothy Day. Non-violence is considered as both social action and spiritual discipline.

THL 758 Roman Catholic and Protestant Ethics (3) OD
Ethical approaches of leading European and American Catholic and Protestant ethicists: Rahner, Janssens, Gustafson, Ramsey, Fletcher, Grisez and McCormick.

THL 760 Scriptural Foundation of Christian Spirituality (3) S
Introduction to Scripture, especially the New Testament, as the foundation to all Christian Spirituality. Faith, prayer, Holy Spirit, Church, centrality of Christ.

THL 761 Liturgical Foundations of Christian Spirituality (3) S
An exploration of the Church's liturgical prayer life as an important basis and foundation for Christian Spirituality.

THL 762 Doctrinal Foundation of Christian Spirituality (3) S
This course examines the foundational doctrines of faith, such as, the Trinity, the divine and human Jesus, salvation by Christ, God's activity in history, the Holy Spirit, and explores their relevance for the Christian spiritual journey, including the relationship to God, to all humanity and to the entire created universe.

THL 764 Prayer and Christian Spirituality (3) S
Using classical and contemporary texts in Christian Spirituality, course studies the theology, methods, stages and dynamics of personal prayer and mysticism.

THL 765 Prayer, Intimacy, and True Christian Growth (3) S
The connection between spiritual and human growth, the necessity of keeping a relationship with Christ, and concrete simple ways of doing it each day.

- THL 766 Contemplation in the Christian Tradition (3) S**
 Course examines approaches to contemplation in classical and contemporary texts. Among authors and texts studied are the following: Pseudo-Dionysius, Cloud of Unknowing, Meister Eckhart, Teresa of Avila, John of the Cross. P: CSP 764 or CSP 765 or equiv.
- THL 767 Spanish Mysticism (3) S**
 Study of Ignatius of Loyola, Teresa of Avila and John of the Cross, discussing their spirituality, teachings on prayer, and understanding of human life as a pilgrimage with Jesus, ending only when total union with God is reached. P: CSP 764 OR 765 or equiv.
- THL 768 Foundational Texts in Christian Mysticism (3) OD**
 Introduction to a wide variety of primary texts in medieval mysticism including works of Teresa of Avila, early Franciscan sources, and Ignatius of Loyola. Students are guided through texts and challenged to apply these texts to practical ministerial experiences.
- THL 769 The History of Christian Spirituality (3) S**
 Development from post-apostolic age to the present. Some of the classics of Christian Spirituality.
- THL 770 Called to Holiness: The Christian Vocation (3) S**
 Saints, ways to sanctity, past and present. The Communion of Saints. **NOTE:** This course fulfills the requirement for a course in the history of spirituality.
- THL 773 The Theology of the Spiritual Exercises of St. Ignatius (3) S**
 Theology, interpretations, commentators, structure, with practical applications. Students will draw greater benefit from this course if they have a prior experience of the Spiritual Exercises either in an individually directed silent retreat or an extended retreat in daily life.
- THL 776 Discernment of Spirits: Theory and Practice (3) S**
 Study of the tradition of discernment in the Church with special emphasis on the rules for discernment of spirits in the Spiritual Exercises and the application of these to Christian life and practice.
- THL 778 Biblical Roots for Peace and Justice Ministry (3) S**
 How to use Scripture responsibly in approaching the social and planetary issues of the third millennium. Sample topics: creation and ecology, violence and nonviolence, hunger and stewardship, conscience and civil authority, option for the poor. Opportunity for special issue study.
- THL 779 Spirituality and Social Concerns (3) S**
 Reflections on the practice of spiritual direction, retreat leadership, and other pastoral ministries in light of themes of justice, peace and solidarity in scripture, Christian history, Catholic social teaching, and human experience. Investigation of how the reality of social injustice affects the private and public dimensions of the spiritual life. Emphasis on personal appropriation and leadership development so that students may integrate knowledge that gain into the ministries.
- THL 785 Psychodynamics of Spiritual Growth (3) S (OD)**
 Human development studied through the main traditions within psychology and spirituality. How psychological and spiritual dynamics are integrated in personal formation with practical applications for spiritual direction and other ministries. Stress, anger, anxiety, control issues, fear, leisure, addictions, grief, sexuality, guilt and shame are seen within adult life-stages moving toward healing, discernment and wholeness.
- THL 786 Family Spirituality (3) S**
 Designed for both those who are families and those who minister to families. Key questions: What are the elements of a spirituality derived from within the experience of family? What is the relationship between such a spirituality and the classic traditions of Christian spirituality?

- THL 787 Feminist/Womanist Theologies for Spirituality (3) S**
A survey of recent feminist theory and its implications for selected topics in Christian theology and spirituality. The focus of theological exploration will be concepts of God; the human person, sin and salvation; and Christology.
- THL 789 Spirituality for Americans: Thomas Merton's Contemplative Vision (3) OD**
The relevance of Merton for contemporary American spirituality. Merton in context of the American experience: his life, writing and thought as guidelines for living the Gospel today. Special attention to themes of True Self, Contemplation and Non-violence.
- THL 790 Spiritual Formation (3) S (OD)**
The nature and dynamics of spiritual formation, emphasizing personal developmental aspects of spiritual growth. Practical aspects of the spiritual life: spiritual identity, spiritual consciousness, holistic spirituality. Theoretical perspective on formative relations in structured situations: religious formation, seminary formation, spiritual formation in parishes. Formation issues: spiritual growth through stages of the life cycle, sexuality and chastity, conflict and community, suffering and death, work and ministry.
- THL 792 Practicum in Ministry (3) OD**
Supervised experience in a practical ministry of the student's choice in consultation with the Program Director.
- THL 793 Directed Independent Readings (1-4) OD**
To be arranged.
- THL 795 Directed Independent Study (3) OD**
To be arranged.
- THL 797 Directed Independent Research (3) OD**
To be arranged.
- THL 798 Pastoral Synthesis (3) OD**
Integration project directed toward a personal pastoral synthesis under the supervision of the Program Director or his designate.
- THL 799 Master's Thesis**



FACULTY

Note: The year appearing in parentheses after the academic rank and official position indicates the beginning of service at Creighton University. The second date, if given, indicates the year of appointment to present rank.

PETER W. ABEL, *Professor of Pharmacology* (1987); *Associate Professor of Pharmaceutical Sciences* (1993).

B.S. Pha., University of Wisconsin, 1973; Ph.D., West Virginia University, 1978.

JEROLD J. ABRAMS, *Assistant Professor of Philosophy* (2001).

B.A., Gonzaga University, 1993; Ph.D., St. Louis University, 1999.

NATALIE R. ADKINS, *Assistant Professor of Marketing* (2000).

B.S., West Virginia University (1990); Ph.D., Virginia Polytechnic Institute and State University (2001).

DEVENDRA K. AGRAWAL, *Professor of Medicine* (1985; 1997); *Professor of Medical Microbiology and Immunology* (1995; 1997); *Professor of Biomedical Sciences* (1998).

B.Sc., Lucknow University (India), 1971; M.Sc., 1973; Ph.D. (Biochemistry), 1978; Ph. D., (Medical Sciences), McMaster University (Canada), 1984.

ROGER C. AIKIN, *Associate Professor of Fine Arts* (1980; 1985).

B.A., University of Oregon, 1969; Ph.D., University of California at Berkeley, 1977.

SUSAN AIZENBERG, *Assistant Professor of English* (2001).

B.F.A., University of Nebraska-Omaha, 1989; M.F.A., Vermont College, 1992.

ROBERT F. ALLEN, *Professor of Economics* (1987).

B.A., Creighton University, 1962; M.A., University of Missouri at Columbia, 1963; Ph.D., Michigan State University, 1969.

NASER Z. ALSHARIF, *Associate Professor of Pharmacy Sciences* (1997); *Associate Professor of Pharmacology* (1997; 1999).

G.C.E., Carlett Park College of Technology, 1980; B.A, University of Nebraska-Omaha, 1984; Pharm.D., M.S., University of Nebraska Medical Center, 1988; Ph.D., Creighton University, 1992.

MICHAEL P. ANDERSON, *Assistant Professor of Chemistry* (1989).

B.A., University of Minnesota-Duluth, 1967; M.S., Michigan Technological University, 1969; Ph.D., University of Minnesota-Minneapolis, 1983.

ROBERT J. ANDERSON, *Associate Professor of Medicine* (1985; 1995); *Professor of Biomedical Sciences* (1992; 1995).

M.D., Northwestern University Medical School, 1973; M.S., University of Minnesota, 1981.

RICHARD V. ANDREWS, *Professor Emeritus of Biomedical Sciences* (1958; 1972; 2000); *Dean Emeritus, Graduate School* (1995).

B.S., Creighton University, 1958; M.S., 1959; Ph.D., University of Iowa, 1963.

DONALD R. BABIN, *Professor of Biomedical Sciences* (1967; 1989).

B.S., University of New Brunswick (Canada), 1958; Ph.D., 1962.

HENRY S. BADEER, *Professor Emeritus of Physiology* (1967; 1991).

M.D., American University of Beirut (Lebonaon), 1938.

AMY S. BADURA, *Assistant Professor of Psychology* (1998).

B.A., University of Notre Dame, 1992; Ph.D., University of Iowa, 1998.

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- JOHN M. BERTONI, *Professor of Neurology* (1989); *Professor of Biomedical Sciences* (1992); *Professor of Pharmacology* (1993); *Chair, Department of Neurology* (1989).
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- THEODORE E. BURK, *Professor of Biology* (1996).
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- SUSAN CALEF, *Assistant Professor of Theology*, (1996).
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- MICHAEL G. CHERNEY, *Professor of Physics* (1989; 1994; 2002).
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- ROBERT J. CHURCHILL, *Assistant Professor of English* (1980; 1996).
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- JERRY E. CLARK, *Associate Professor of Sociology* (1976; 1982).
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- RORY J. CONCES, *Lecturer of Philosophy* (1994).
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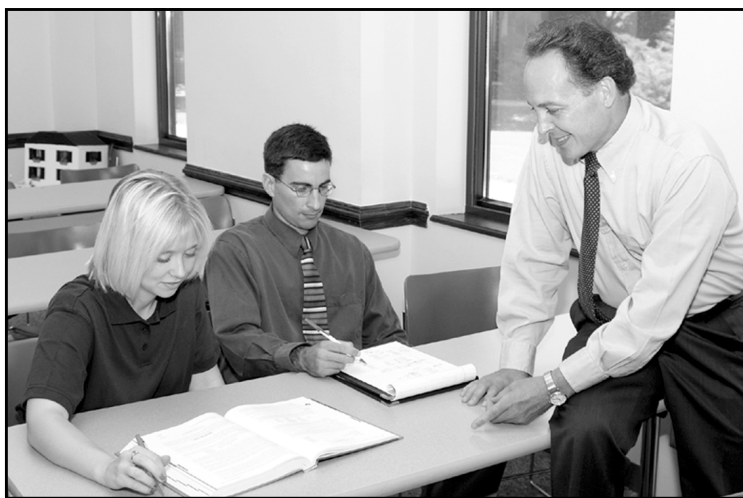
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B.A., Whitman College, 1968; M.S., Indiana University-Bloomington, 1971; Ed.D., 1973; Graduate Certificate in Gerontology.
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- Michelle L. Evers, *Assistant Professor of Modern Languages and Literatures* (2001).
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- FIDEL FAJARDO-ACOSTA, *Associate Professor of English* (1993; 1997).
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- RANDOLPH M. FEEZELL, *Professor of Philosophy* (1977; 1992).
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- PAUL D. FEY, *Assistant Clinical Professor of Microbiology and Immunology* (1998).
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- LAURA L. FINKEN, *Assistant Professor of Psychology* (1996).
B.A., Creighton University, 1990; M.A., University of Nebraska-Lincoln, 1993; Ph.D., 1996.
- ARTHUR F. FISHKIN, *Associate Professor of Biomedical Sciences* (1968; 1989).
B.A., Indiana University, 1951; M.A., 1952; Ph.D., University of Iowa, 1957.
- ROBERT J. FITZGIBBONS, JR., *Professor of Surgery* (1980; 1993); *Professor of Biomedical Sciences* (1996).
M.D., Creighton University, 1974.
- EDWARD L. FITZSIMMONS, *Associate Professor of Economics* (1984; 1994).
B.A., Creighton University, 1964; M.B.A., University of Chicago, 1966; M.S.W., St. Louis University, 1973; Ph.D., University of Nebraska-Lincoln, 1984.
- JULIA FLEMING, *Associate Professor of Theology* (1996; 2001).
B.A., University of Missouri, 1981; M.A., 1982; M.A., (Theology) The Catholic University of America, Washington, D.C., 1985; Ph.D., (Theology), 1993.
- PATRICIA A. FLEMING, *Associate Dean, College of Arts and Sciences* (2001); *Associate Professor of Philosophy* (1977; 1992).
B.A., Marygrove College, 1971; M.A., Washington University, 1975; Ph.D., 1983.
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B.A., Western Illinois University, 1971; M.B.A., University of Connecticut, 1976; M.S., University of Hartford, 1978; D.B.A., University of Kentucky, 1989; C.P.A., Illinois, 1972; C.M.A., 1979.
- NELSON C. FONG, *Associate Professor of Mathematics and Computer Science* (1984);
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B.S., Harding University, 1967; M.S., Memphis State University, 1968; Ph.D., University of Nebraska-Lincoln, 1974.
- MARK FREITAG, *Assistant Professor of Chemistry* (2002).
B.A., University of Minnesota-Morris, 1996; Ph.D., Iowa State University, 2002.
- BERND FRITZSCH, *Professor of Biomedical Sciences* (1990; 1993).
M.S., University of Darmstadt (Germany), 1974; Ph.D., 1987.
- ELIZABETH ANN FURLONG, *Associate Professor of Nursing* (1971; 2001).
B.S.N., Marycrest College, 1964; M.S., University of Colorado, 1971; Ph.D., University of Nebraska-Lincoln, 1993; J.D., Creighton University, 2000.
- LUIS GARCIA, *Assistant Professor of Finance* (2001).
B.A., Complutense University of Madrid (1991); Ph.D., University of Missouri-Columbia (2001).
- RELOY GARCIA, *Professor of English* (1968; 1973).
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- LOUIS E. GARDNER, *Professor Emeritus of Psychology* (1967; 1978; 2001).
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B.S. (Biological Science), California State Polytechnic University, 1961; B.S. (Microbiology and
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- KEVIN M. GRAHAM, *Associate Professor of Philosophy (1996; 2002)*.
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- G. H. GRANDBOIS, *Associate Professor of Social Work (1991); Chair, Department of Social
Work (1993)*.
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B.S.N., University of Nebraska-Omaha, 1967; M.S.N., Creighton University, 1985; Ph.D.,
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B.A. University of Notre Dame, 1991; M.A., Boston College, 1996; Ph.D., 1999.
- ROBERT E. KENNEDY, *Associate Professor of Physics* (1966; 1972); *Chair, Department of Physics* (1993)
B.S., Loyola University of Los Angeles, 1961; Ph.D., University of Notre Dame, 1966.
- MANZOOR M. KHAN, *Professor of Pharmacy Sciences* (1990).
B.S., University of Karachi (Pakistan), 1970; P.M.S., 1972; M.S. (Biology), University of Bridgeport, 1975; Ph.D., University of Arizona Health Sciences Center, 1980.
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- ANTHONY E. KINCAID, *Assistant Professor of Physical Therapy* (1995); *Assistant Professor of Biomedical Sciences* (1995).
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- EDETH KITCHENS, *Professor of Nursing* (1996).
B.S.N., University of Alabama-Huntsville, 1976; M.S.N., University of Alabama-Birmingham, 1979; Ph.D., 1985.
- FRANCIS M. KLEIN, *Associate Professor of Chemistry* (1968; 1973).
B.S., Kings College (Pennsylvania), 1963; Ph.D., University of Notre Dame, 1967.
- JOSEPH A. KNEZETIC, *Associate Professor of Biomedical Sciences* (1991; 2002); *Associate Professor of Preventive Medicine and Public Health* (2000; 2002).
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- JAMES J. KNUDSEN, *Assistant Professor of Economics* (1989).
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B.S., Union College, 1967; M.B.A., University of Nebraska-Lincoln, 1971; Ph.D., 1975; C.P.A., Texas, 1976.
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B.S.N., Creighton University, 1977; M.S.N., University of Nebraska-Lincoln, 1979; Ph.D., University of Nebraska-Lincoln, 1991.
- JOAN M. LAPPE, *Associate Professor of Nursing* (1993); *Professor of Nursing* (2001).
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B.S., National University (Ireland), 1955; Diploma in Education, 1957; B.D., Pontifical Gregorian University (Rome), 1961; S.T.L., 1963; Diploma, International Catechetical Centre (Belgium), 1968; Ph.D., Aquinas Institute of Theology, 1975.
- LINDA L. LAZURE, *Associate Professor of Nursing* (1995); *Associate Dean for Student Affairs* (1996).
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- GARY K. LEAK, *Professor of Psychology* (1979; 1985; 2002).
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- KARIN LEVINE, *Adjunct Instructor of Education*, (1996).
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- SANDOR LOVAS, *Associate Professor of Biomedical Sciences* (1994; 2002).
Ph.D., M.S., Jozef Attila University (Hungary), 1982; Ph.D., 1985.
- JAMES V. LUPO, *Associate Professor of Psychology* (1977; 1983).
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- ROBERT B. MACKIN, *Associate Professor of Biomedical Sciences* (1992; 1997).
B.A., Carleton College, 1982; Ph.D., Emory University, 1987.
- MICHAEL C. MAKOID, *Professor of Pharmacy Sciences* (1980); *Associate Professor of Pharmacology* (1989).
B.S.Pha., University of Wisconsin, 1968; M.S.Pha., 1972; Ph.D., 1975.
- DAVENDER S. MALIK, *Professor of Mathematics and Computer Science* (1985; 1999).
B.A., Delhi University (India), 1978; M.S., Ohio University, 1985; Ph.D., 1985.
- BRUCE J. MALINA, *Professor of Theology* (1969; 1975).
B.A., St. Francis College (Wisconsin), 1956; S.T.L., Pontifical Antonian Atheneum (Rome), 1964; S.S.L., Pontifical Biblical Institute (Rome), 1966; S.T.D., Studium Biblicum Franciscanum (Jerusalem), 1967; S.T.D. (hon.), University of St. Andrew, Scotland, 1995.
- DOUGLAS W. MALLEBY, *Assistant Professor of Decision Sciences* (1982).
B.Sc., University of Toronto, 1967; M.S., University of Manitoba, 1972; Ph.D., Colorado State University, 1977; M.B.A., University of Nebraska-Lincoln, 1980.
- ROBERT P. MARBLE, *Associate Professor of Decision Sciences* (1983; 1988).
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- BRUCE M. MATTSON, *Professor of Chemistry* (1977; 1994).
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- MICHAEL D. MCATEE, *Part-Time Lecturer of Atmospheric Sciences* (1994).
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- JOANN D. MCGEE, *Assistant Professor of Otolaryngology* (1992); *Assistant Professor of Biomedical Sciences* (1992).
B.S., University of San Francisco, 1977; M.S., Creighton University, 1983; Ph.D., Southern Illinois University, 1989.

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B.S., University of Utah, 1974; M.S., Brigham Young University, 1978; Ph.D., Iowa State University, 1993.
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B.A., St Louis University, 1937; M.A., 1939; Ph.L., 1939; S.T.L., 1946.
- ROBERT A. MCLEAN, *Professor of Health Services Administration* (1999).
B.A., University of Texas at Austin, 1971; M.A., 1973; Ph.D., Cornell University, 1976.
- GEORGE W. MCNARY, *Assistant Professor of Business Law* (1983; 1985).
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- THOMAS S. MCSHANE, S.J., *Assistant Professor of Physics* (1963; 1966).
B.A., Spring Hill College, 1954; M.S., St. Louis University, 1956; S.T.B., 1961.
- PHILIP J. MEEKS, *Associate Professor of Political Science* (1992).
B.A., University of Notre Dame, 1972; Ph.D., University of Texas at Austin, 1980.
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B.A., Eastern Montana College, 1982; M.A., Arizona State, 1991.
- RITA A. MEYER, *Assistant Professor of Biomedical Sciences* (2000).
B.S., University of Minnesota, 1974; M.S., University of Minnesota, 1974; Ph.D., University of Chicago, 1981.
- GARY D. MICHELS, *Associate Professor of Chemistry* (1986; 1993); *Chair, Department of Chemistry* (1999).
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- THERESE MICHELS, *Lecturer of Chemistry* (1988).
B.S.Chm, University of Nebraska-Lincoln, 1973; M.S., Iowa State University, 1975; Ph.D., 1977.
- DENNIS N. MIHELICH, *Associate Professor of History* (1975; 1981).
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- R. NATASHA MOHR, *Lecturer of Philosophy* (1998).
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- JOHN F. MONTAG, S.J., *Assistant Professor of Philosophy* (2001).
B.A., St. Louis University, 1986; B.S.Th., Pontificia Universidad de Comillas, Madrid, Spain, 1992; M.A. Boston College, 1996.
- ROBERT H. MOORMAN, *Associate Professor of Management* (2000); *Robert H. Daugherty Endowed Chair in Management* (2001).
B.A., The College of Wooster, 1983; M.B.A., Indiana University, Bloomington, 1989; Ph.D., 1990.
- JOHN N. MORDESON, *Professor of Mathematics* (1963; 1971).
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B.A., Silver Lake College, 1983; M.A. (Music) University of Wisconsin, 1986; MCSP, Creighton University, 1989; Ph.D., (Theology) Duquesne University, P.A., 1992.
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B.Sc., National University of Ireland, 1963; Ph.D., 1966.

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B.S., Marquette University, 1970; Ph.D., St. Louis University, 1979.
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B.A., University of Mysore (India), 1961; M.A., 1963; Ph.D., State University of New York at Binghamton, 1975.
- MARY BETH MUSKIN, *Assistant Professor of Education* (1991, 1998).
B.A., University of Nebraska-Lincoln, 1975; M.S., Johns Hopkins University, 1978; Ph.D., University of Nebraska-Lincoln, 1986.
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M.Phil., Kerala University (India), 1980; Ph.D., 1985; Ph.D., Concordia University (Canada), 1989.
- RODERICK NAIRN, *Professor of Medical Microbiology and Immunology* (1995); *Chair, Department of Medical Microbiology and Immunology* (1995); *Professor of Pathology* (1996).
B.Sc., University of Strathclyde, 1973; Ph.D., University of London, 1976.
- RAVINDER NATH, *Professor and Jack and Joan McGraw Endowed Chair in Information Systems and Technology* (1998); *Director of the Joe Ricketts Center in Electronic Commerce* (1999).
B.A., Punjab University, 1972; M.A., 1974; M.S., Wichita State University, 1975; Ph.D., Texas Tech University, 1980.
- DAVID H. NICHOLS, *Associate Professor of Biomedical Sciences* (1981: 1989).
B.S., Case Institute of Technology, 1969; Ph.D., University of Oregon, 1975.
- MICHAEL G. NICHOLS, *Assistant Professor of Physics* (1999); *Assistant Professor of Biomedical Sciences* (2000).
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- LANCE NIELSEN, *Assistant Professor of Mathematics and Computer Science* (2000).
B.S., University of South Dakota, Vermillion, 1981; M.S., University of New Hampshire, Durham, NH, 1984; Ph.D., University of Nebraska, Lincoln, 1999.
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B.S.N., University of Nebraska-Lincoln, 1972; M.S.N., UNMC, 1974; Ph.D., University of Nebraska-Lincoln, 1984.
- NEIL S. NORTON, *Assistant Professor of Oral Biology* (1996); *Assistant Professor of Pharmacology* (1997).
B.A., (Biology), Randolph-Macon College, Ashland, Virginia, 1988; Ph.D., (Anatomy), University of Nebraska Medical Center, 1995.
- JOHN J. O'KEEFE, *Associate Professor of Theology* (1992; 1998); *Chair, Theology Department* (1999).
B.A., Stetson University, 1983; M.T.S., Weston School of Theology, 1988; M.A., Catholic University of America, 1990; Ph.D., 1993.
- S. EDET OHIA, *Professor of Pharmacy Sciences* (1991; 2000); *Professor of Biomedical Sciences* (2000); *Professor of Pharmacology*.
B.Sc., University of Ibadan (Nigeria), 1978; M.Sc., 1981; Ph.D., University of Glasgow (Scotland), 1986.
- LYNN OLSON, *Assistant Professor of Education* (1998).
B.S., University of Nebraska-Omaha, 1973; M.S., 1978; Ph.D., University of Nebraska-Lincoln, 1992.

- SUMIKO OTSUBO, *Assistant Professor of History* (1998).
B.A., Sophia University (Tokyo, Japan), 1986; M.S., Slippery Rock University, 1990; Ph.D., Ohio State University, 1998.
- ERIC B. PATTERSON, *Assistant Professor of Biomedical Sciences* (1991).
B.A., Talladega College, 1973; Ph.D., Meharry Medical College, 1984.
- JANICE M. PAYAN, *Assistant Professor of Management* (2001).
B.S., University of Colorado (1975); M.P.A., University of Colorado (1976); M.B.A., University of Colorado (1983); Ph.D., University of Wisconsin-Madison, (2000).
- ROBERT G. PENN, *Assistant Clinical Professor of Medical Microbiology and Immunology* (1980; 1981).
B.S., University of Nebraska, 1972; M.D., 1975.
- DAVID H. PETZEL, *Associate Professor of Biomedical Sciences* (1989; 1995); *Associate Professor of Pharmacology* (1996).
B.S., Southampton College, 1974; M.S., University of Oslo, 1977; Ph.D., University of Illinois, 1982.
- WINIFRED J. PINCH, *Professor of Nursing* (1993).
B.S.N., Temple University, 1963; M.Ed., State University of New York, 1973; Ed.D., Boston University, 1983; M.S., Creighton University, 1985.
- THOMAS E. PISARRI, *Assistant Professor of Biomedical Sciences* (1993).
B.S., State University of New York at Buffalo, 1973; M.S., University of Wisconsin-Madison, 1975; Ph.D., 1983.
- ROBERT E. PITTS, *Professor of Marketing* (1997); *Dean, College of Business Administration* (1997).
B.S.A., Georgia State University, 1970; M.B.I.S., 1972; Ph.D., University of South Carolina, 1977.
- JAMES E. PLATZ, *Professor of Biology* (1973; 1985).
B.S., Texas Technological College, 1967; M.S., 1970; Ph.D., Arizona State University, 1974.
- DEBRA L. PONEC, *Associate Professor of Education* (1995; 2000); *Chair, Department of Education* (2000).
B.S., Creighton University, 1976; M.S., University of Nebraska-Omaha, 1981; Ed.D., University of Nebraska-Lincoln, 1994.
- LAUREL PREHEIM, *Professor of Medical Microbiology and Immunology* (1978; 1992); *Professor of Medicine* (1978; 1992).
B.A., Bethel College (Kansas), 1969; M.D., Northwestern University, 1973.
- THOMAS J. PURCELL, III, *Associate Professor of Accounting* (1979; 1989).
B.S.B.A., Creighton University, 1972; J.D., 1977; M.A., University of Missouri at Columbia, 1978; C.P.A., Nebraska, 1978; Ph.D., University of Nebraska-Lincoln, 1988.
- RUTH B. PURTILO, *Professor of Health Policy and Ethics* (1991); *Professor of Physical Therapy* (1993); *Director of Health Policy and Ethics* (1995).
B.S., University of Minnesota, 1964; M.T.S., Harvard University, 1975; Ph.D., 1979.
- THOMAS H. QUINN, *Professor of Biomedical Sciences* (1977; 1996); *Professor of Surgery* (1997).
B.A., Creighton University, 1972; M.S., 1973; Ph.D., University of Nebraska-Lincoln, 1981.
- JOAN M. RAMAGE, *Assistant Professor of Environmental Science* (2002).
B.A., Carleton College, 1993; M.S., Pennsylvania State, 1995; Ph.D., Cornell University, 2001.
- GRAHAM P. RAMSDEN, *Assistant Professor of Political Science* (1990).
B.A., University of Colorado at Boulder, 1982; M.A., 1986; Ph.D., University of Iowa, 1992.
- VASANT H. RAVAL, *Professor of Accounting* (1980; 1989); *Chair, Department of Accounting* (2000).
B. Comm., University of Bombay (India), 1961; M.B.A., Indiana State University, 1972; D.B.A., Indiana University-Bloomington, 1976; C.I.S.A., 1984.

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M.S., Florida International University, 1982; Ph.D., University of Michigan, 1990.
- DAVID REED, *Assistant Professor of Mathematics and Computer Science* (2000).
B.S., Vanderbilt University, 1985; Ph.D., Duke University, 1992.
- ELIZABETH C. REED, *Assistant Clinical Professor of Medical Microbiology* (1993); *Assistant Clinical Professor of Medicine* (1993).
B.A., Hastings College, 1977; M.D., University of Nebraska Medical Center, 1980.
- ROGER D. REIDELBERGER, *Associate Professor of Biomedical Sciences* (1990; 1993); *Associate Professor of Pharmacology* (1996).
B.S., Northwestern University, 1970; B.S., University of California, 1974; Ph.D., 1980.
- MARC S. RENDELL, *Professor of Medicine* (1986; 1986); *Professor of Biomedical Sciences* (1993; 1996).
B.S., City College of New York, 1968; M.D., State University of New York—Downstate Medical Center, 1972.
- RUSSELL R. RENO, *Associate Professor of Theology* (1990; 1996).
B.A., Haverford College, 1983; Ph.D., Yale University, 1990.
- KATHLEEN R. RETTIG, *Assistant Professor of English* (1991; 1998).
B.S., University of North Dakota, 1976; M.A., 1977; Ph.D., 1985.
- LISA A. RILEY, *Associate Professor of Sociology* (1995; 2001).
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- VICTORIA F. ROCHE, *Associate Dean for Education and Faculty Development* (2001); *Professor of Pharmacy Sciences* (1982; 1995).
B.S., Nebraska Wesleyan University, 1973; M.S., University of Nebraska College of Pharmacy, 1976; Ph.D., University of Nebraska Medical Center, 1981.
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- JOSE R. ROMERO, *Assistant Professor of Medical Microbiology and Immunology* (1993); *Assistant Professor of Pediatrics* (1993).
M.D., Universidad Autonoma de Guadalajara (Mexico), 1977.
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B.A., Michigan State University, 1967; M.A., 1968; Ph.D., University of Nebraska-Lincoln, 1992.
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B.S., University of Texas, 1981; M.D., Baylor College of Medicine, 1986.
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 B.A., University of San Diego, 1986; B.A., 1989; Katholieke Universiteit Leuven (Belgium), 1989;
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 (1997; 1999).
 B.A., University of Puerto Rico, 1976; M.A., University of Nebraska-Lincoln, 1989; Ph.D.,
 University of Nebraska, Lincoln, 1999.
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 B.A., University of California, 1967; Ph.D., University of Arizona, 1973.
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 B.S., Grove City College, 1971; M.S., Miami University, 1973; Ph.D., Emory University, 1979.
- JON SCHRAGE, *Assistant Professor of Environmental Science* (2002).
 B.S., Creighton University, 1992; M.S., Purdue University, 1994; Ph.D., Purdue University, 1998.
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- EUGENE E. SELK, *Associate Professor of Philosophy* (1965-68; 1970; 1978); *Chair,
 Department of Philosophy* (1988-1994).
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 1999); *Professor Emeritus of Preventive Medicine and Public Health* (1976; 1999).
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 Creighton University, 1986.
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 of the Graduate Program in Christian Spirituality* (1994).
 B.A., St. Louis University, 1960; M.A., 1961; Ph.L., 1961; S.T.L., 1968; Ph.D., Fordham University, 1975.
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B.A., Evangel College, 1982; M.A.T.S., Gordon-Conwell Theological Seminary, 1984; Ph.D.,
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- JEFFREY M. SMITH, *Assistant Professor of Education* (1999).
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- GARRETT A. SOUKUP, *Assistant Professor of Biomedical Sciences* (2000).
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- JULLANE K. SOUKUP, *Assistant Professor of Chemistry, Clare Boothe Luce Faculty Chair* (2000)
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- MARY HELEN STEFANIAK, *Assistant Professor of English* (1998).
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- BRENT SPENCER, *Associate Professor of English* (1992; 1997).
B.A., Wilkes College, 1974; M.A., University of Michigan, 1975; M.F.A., University of Iowa,
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- CHARLES H. STEIN, *Associate Professor of English* (1967; 1970).
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- NANCY J. STONE, *Associate Professor of Psychology* (1989; 1998).
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- JEFFERY R. STOUT, *Assistant Professor of Exercise Science* (1995); *Assistant Professor of
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