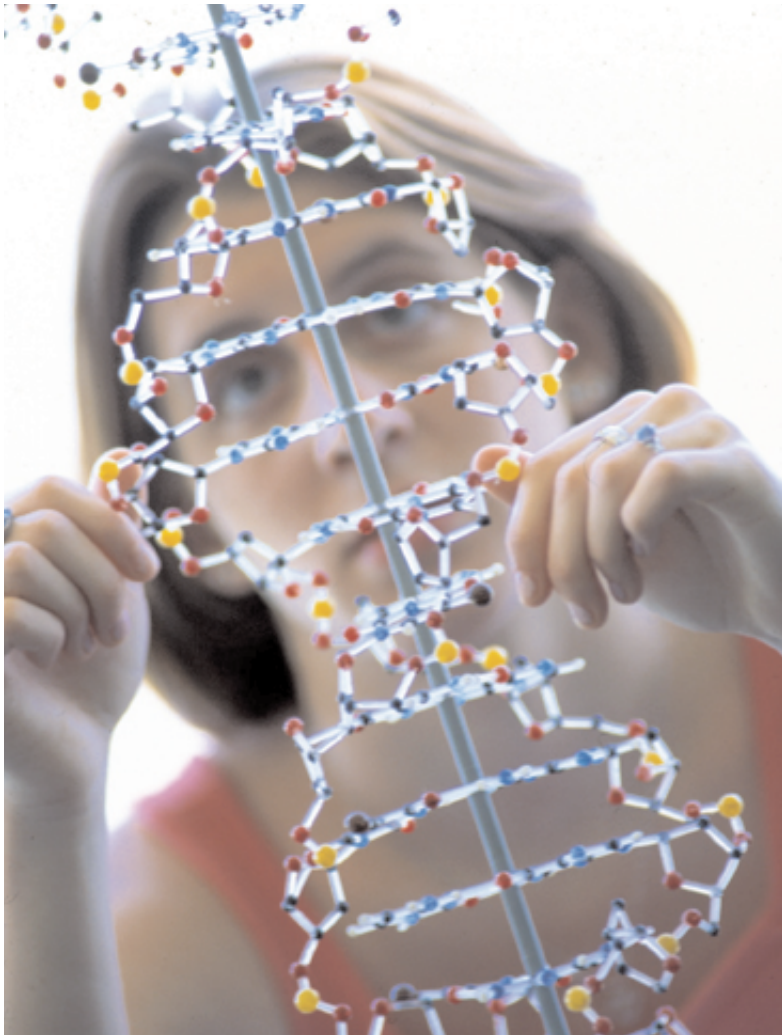


College of Arts and Sciences



COLLEGE OF ARTS AND SCIENCES

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The College of Arts and Sciences is the largest, and the most diverse, of the four colleges at Sacred Heart University. The college offers Bachelor of Arts and Science degrees; Associate in Arts and Science degrees; Master's degrees in Chemistry, Computer Science and Religious Studies; and a variety of minors.

The degrees are offered through the following academic departments: Art; Biology; Chemistry; Computer Science; English and Modern Foreign Languages; Government and Politics; History; Mathematics; Media Studies and Digital Culture; Philosophy and Religious Studies; Psychology; Sociology, Social Work and Criminal Justice; and Special Programs.

Chemistry

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Chemistry Laboratories

There are eight chemistry laboratories serving the needs of inorganic chemistry, organic chemistry, physical chemistry, analytical chemistry, instrumental analysis, biochemistry, environmental chemistry, and computational chemistry. These laboratories contain the following major equipment:

Spectroscopy

Jeol ECLIPSE 400 high resolution 400 MHz NMR Spectrometer with self-shielding magnet system; Bomem MB-100 and PE Spectrum One FT-IR Spectrometers; PE Lambda 20, PE 559 and PE Lambda 3B and four PE MBA 2000 Ultra-

violet/Visible Spectrophotometers; PE LC 55 Ultraviolet/Visible/Near Infrared Recording Spectrophotometers; PE LS 5 Luminescence Spectrometer; PE Luminescence Spectroscopy LS Reader; Buck Scientific ACCUSYS 211 Flame and Graphite Furnace Atomic Absorption Spectrometer with Autosampler.

Chromatography

PE HPLC Binary UV/Vis System with Series 200 Autosampler; Gow Mac 550P and two Gow Mac 69-400 TCD-P Gas Chromatographs.

Electrochemistry

Pine Dual Potentiostat System; EG&G Parc 264A and EG&G Parc 384 Polarographic Analyzer/Stripping Voltammeter; EG&G Parc 303A SMDE Electrode; EG&G Parc 616 RDE Electrode; Houston Amtek DMP 40 Series Digital Plotter; Linseis IY1900PL X-Y-t Recorder.

Computers and Software Licenses

Three SGI O₂ workstations; ACD proton and carbon-13 NMR software; Wiley 6th edition MS spectral library of 138,000 MS Spectra and NIST Library Chemical Structure Database; Sadtler search software and infrared spectrum library of 3500 organic and inorganic compounds; HyperChem Organic Scientific Graphing; MATHCAD; ChemDraw; Chem3D; IF Tutor; Introduction to Spectroscopy; Spectra Deck; Turbochrom.

Others

Performance Plus HP 6890 GC/MS System includes: 6890 Series GC, MSD, MS Software, Ion Gauge Controller for Triode, Capillary S/SI inlet with EPC for 0/100 psi split/splitless operation, Flame ionization Detector with EPC, Purge-and-Trap Liquid Sample Concentrator; Rudolph Autopol IV Automatic Polarimeter; Johnson Matthey Mark II Magnetic Susceptibility Balance; Jenway PFP7 Flame Photometer; PE 48-well

Thermal Cylinder for DNA analysis; IEC Centra CL2 Benchtop Clinical Centrifuge; Classic Series C-Line Model C24 Benchtop Incubator Shaker; Labconco Tissue Culture Enclosure.

Master of Science in Chemistry

Sacred Heart University's Graduate Chemistry program includes a number of graduates with a Bachelor of Science degree in Chemistry who are working in the region and aspire to an advanced degree in Chemistry. The program is also composed of science graduates with a B.S. degree in other fields of science who are shifting career interests and want to obtain a degree in Chemistry. Enrollment in this program allows these students to use their science background to obtain an advanced degree in Chemistry without first obtaining a B.S. in Chemistry. This approach allows students to obtain a higher degree in the same time frame that it would have taken them to obtain just a B.S. in Chemistry.

Local chemical industry scientists participate in the teaching of graduate courses. Students who opt to do research are allowed, if and when possible, to pursue their projects at their place of employment with joint supervision of their employer and University faculty. This allows students to work on relevant projects that interest them, while at the same time increasing collaboration between the University and local industries.

Goals and Objectives

The Master of Science in Chemistry program builds on the strength of the University's undergraduate Chemistry program. The program meets the needs of students and the chemical industry by offering a unique opportunity for career and personal advancement to employees of the local chemical industry, while serving the industry to employ and recruit better qualified chemists.

In order to serve part-time as well as full-time students, graduate courses are offered in the

evenings and on Saturdays. This, together with the University's ideal location, allows chemical industry employees to continue their study on a part-time basis while working full-time and thus take advantage of tuition reimbursement programs offered by their employers.

Course Loads

Both full-time and part-time graduate students are enrolled in the program. Full-time students must enroll in at least nine credit hours per semester. This allows them to normally finish the degree requirements in two years. Part-time students are expected to enroll in three to six credit hours per semester. This allows them to finish the degree requirements in three years or less.

Student Transfer Credit Policy

Transfer credits are granted for appropriate graduate-level courses with a grade of B or better, taken at other regionally accredited institutions. Students, however, must complete at least 70 percent of the required credits including the thesis (when applicable) at Sacred Heart University and pass the comprehensive exam, in order to obtain an M.S. degree in Chemistry.

Admission Requirements

Admission to the program is in January and September of each year. Full-time students are expected to finish the degree requirements in four semesters. Part-time students may require at least three years. The University's graduate admission policy is observed when admitting students to the program. Applicants with a B.S. degree in Chemistry or Chemical Engineering are accepted based on their undergraduate performance in Chemistry and other supporting subjects. Applicants with a B.S. degree in other areas of science and mathematics are admitted after completing the appropriate courses in Chemistry in order to meet individual graduate course prerequisites.

Degree Requirements

These tracks of study leading to an M.S. degree in Chemistry are available:

M.S. in Chemistry, Thesis Option

M.S. in Chemistry, Non-Thesis Option

M.S. in Chemistry, Thesis Option

Thirty semester hours of approved graduate credits must be completed for the degree with a minimum grade point average (GPA) of 3.0. Students must complete a 12-credit core plus a thesis.

Required Courses

CH 521 Advanced Organic Chemistry 3 credits
or

CH 522 Organic Synthesis 3 credits

CH 531 Advanced Physical Chemistry I:
Molecular Structure 3 credits

or

CH 532 Advanced Physical Chemistry II:
Molecular Dynamics 3 credits

CH 551 Advanced Analytical Instrumentation I:
Spectroscopy 3 credits

or

CH 552 Advanced Analytical Instrumentation II:
Chromatography 3 credits

CH 553 Advanced Inorganic Chemistry 3 credits

CH 599 Thesis 6 credits

M.S. in Chemistry, Non-Thesis Option

Thirty-three semester hours of approved graduate credits must be completed for the degree with a minimum GPA of 3.0. Students must complete a 12-credit core plus the Advanced Integrated Lab.

Required Courses

CH 521 Advanced Organic Chemistry 3 credits
or

CH 522 Organic Synthesis 3 credits

CH 531 Advanced Physical Chemistry I:
Molecular Structure 3 credits

or

CH 532 Advanced Physical Chemistry II:
Molecular Dynamics 3 credits

CH 551 Advanced Analytical Instrumentation I:
Spectroscopy 3 credits

or

CH 552 Advanced Analytical Instrumentation II:
Chromatography 3 credits

CH 553 Advanced Inorganic Chemistry 3 credits

CH 595 Advanced Integrated Laboratory 3 credits

CH 598 Comprehensive Test 0 credits

Students electing the non-thesis option are required to pass a comprehensive exam.

Students are required to take electives from graduate-level courses in Chemistry and no more than six credits of other approved courses in other related areas of science, mathematics, physics, biology and computer science.

Elective Courses (for both options)

CH 523 Organic Structure
Determination 3 credits

CH 524 Special Topics in
Organic Chemistry 2–3 credits

CH 534 Special Topics in
Physical Chemistry 2–3 credits

CH 541 Advanced Biochemistry 3 credits

CH 549 Special Topics in
Biochemistry 2–3 credits

CH 554 Special Topics in
Analytical Chemistry 2–3 credits

CH 555 Theoretical Inorganic
Chemistry 3 credits

CH 556 Chemical Applications
of Group Theory 3 credits

CH 559 Special Topics in
Inorganic Chemistry 2–3 credits

CH 561 Environmental Chemistry 3 credits

CH 565 Environmental Sampling and
Analysis 3 credits

CH 569 Special Topics in
Environmental Chemistry 3 credits

CH 571 Polymer Chemistry 3 credits

CH 590 Chemical Information:
Sources and Technology 3 credits

CH 595 Advanced Integrated
Laboratory 3 credits

B.S./M.S. Combined Degree in Chemistry

This is a five-year undergraduate/graduate accelerated track. Students who complete this track receive both B.S. and M.S. degrees. Students must elect this track in their Freshman, Sophomore or Junior year. Traditional and Biochemistry concentrations are available at the undergraduate level. Students are required to complete 145 credits of undergraduate- and graduate-level courses and a thesis. The thesis involves six credits of original research.

Course Descriptions

CH 521 Advanced Organic Chemistry 3 CH

Prerequisite: CH 222 Organic Chemistry II or equivalent. Explores the effects of structure and environment on reaction rates and equilibria and the use of statistical and quantum mechanics in organic chemical reactions. Topics include: organic reaction mechanism, Huckel theory, orbital symmetry, photochemistry and standard concepts of physical organic chemistry.

CH 522 Organic Synthesis 3 CH

Prerequisite: CH 222 Organic Chemistry II or equivalent. Surveys three general classes of reactions: reduction, oxidation and the formation of carbon-carbon bonds. Each reaction is used as a tool in chemical synthesis.

CH 523 Organic Structure Determination 3 CH

Prerequisites: CH 222 Organic Chemistry II or equivalent and CH 351 Instrumental Analysis or equivalent. Identification and structure determination of organic molecules by modern spectroscopic techniques. Emphasis is on IR, NMR, CMR and mass spectrometry. Hands-on work in NMR and FT-IR.

CH 524 Special Topics in Organic Chemistry 3 CH

Topics include: heterocyclic chemistry, medicinal

chemistry, polymer chemistry, supramolecular chemistry, organometallic chemistry, radical and photochemistry and combinatorial chemistry.

CH 530 Physical Chemistry 3 CH

Prerequisite: CH 331; *co- or prerequisite:* MA 253 or permission of the program director. A prerequisite to CH 531. Explores advanced kinetics and quantum mechanics.

CH 531 Advanced Physical Chemistry I: Molecular Structure 3 CH

Prerequisite: CH 332. Topics in quantum chemistry, molecular structure, group theory and applications of these topics to spectroscopy.

CH 532 Advanced Physical Chemistry II: Molecular Dynamics 3 CH

Prerequisite: CH 332. Topics in statistical thermodynamics, collision theory, and reaction dynamics and mechanism.

CH 534 Special Topics in Physical Chemistry 3 CH

Topics include: magnetic resonance spectroscopy, statistical mechanics and mathematical and computer concepts in chemistry.

CH 541 Advanced Biochemistry 3 CH

Prerequisite: CH 342 Biochemistry II or equivalent. Explores the integration of the basic chemistry of biomolecules into living systems. Topics include: bioenergetics and metabolic pathways; biosynthesis and biodegradation of amino acids, proteins, nucleotides and DNA; chemical communication; hormones; and the cell cycle.

CH 549 Special Topics in Biochemistry 3 CH

Topics include: carbohydrate chemistry; enzyme kinetics; endocrinology; electrically excitable cells; computer-aided access to proteins and databases; cell motility; chemical concepts in genetic engineering.

CH 550 Instrumental Analysis 3 CH

Prerequisites: CH-252 and CH 331 or permission of the program director. A prerequisite to CH 551.

Explores theory and practice of instrumental methods of analysis: spectrophotometric, electroanalytical and chromatographic methods of separation and quantification.

CH 551 Advanced Analytical Instrumentation I: Spectroscopy 3 CH

Prerequisite: CH 351. Fundamentals and practical aspects of analytical spectroscopy. Special emphasis is given to theory and instrumentation; methods and applications are covered.

CH 552 Advanced Analytical Instrumentation II: Chromatography 3 CH

Prerequisite: CH 351. Fundamentals and practical aspects of analytical separation and chromatography. Special emphasis is given to theory and instrumentation; methods and applications are covered.

CH 553 Advanced Inorganic Chemistry 3 CH

Prerequisite: CH 331 Physical Chemistry I or equivalent. The physical and chemical properties of the elements and their compounds are correlated with their positions in the periodic table. Bonding theory and coordination chemistry are emphasized. (This undergraduate/graduate level course also has an undergraduate course number of CH 355, Advanced Inorganic Chemistry, or equivalent.) Three credits will be given for the completion of this course with a grade of B or better.

CH 554 Special Topics in Analytical Chemistry 3 CH

Topics include: data acquisition and LIMS; aquatic chemistry; GC-MS: theory, instrumentation and method; thermal analysis; and applications of supercritical fluids.

CH 555 Theoretical Inorganic Chemistry 3 CH

Prerequisite: CH 355 Advanced Inorganic

Chemistry, CH 553 or equivalent. An advanced theoretical study of bonding and spectroscopy of inorganic compounds. Topics include: crystal field, ligand field and molecular orbital theories of inorganic complexes; magnetic susceptibility; and electronic, infrared and raman spectroscopy.

CH 556 Chemical Applications of Group Theory 3 CH

Prerequisite: CH 331 Physical Chemistry I or equivalent. Presents basic principles of group theoretical methods. Topics include: molecular symmetry, normal coordinate analysis, molecular bonding and energy levels and theoretical basis for selection rules.

CH 559 Special Topics in Inorganic Chemistry 3 CH

Topics include: electronic spectra of transition metal complexes, reactions of transition metal complexes, ionic liquids and bioinorganic chemistry.

CH 561 Environmental Chemistry 3 CH

Prerequisites: CH 221 Organic Chemistry I or equivalent and MA 151 Introductory Calculus or equivalent. Focuses on the chemical aspects of the human environment. Examines the sources, reactions, transport, effects and fates of chemical species in water, soil, air and living environments and the effects of technology thereon.

CH 565 Environmental Sampling and Analysis 3 CH

Prerequisite: CH 561. Discusses methods and protocols of environmental sampling and analysis in water, air and biological matrices. Addresses EPA quality assurance and quality control plans. Laboratory and field work include: sampling of surface and groundwater, performing chemical and biological analyses of water, monitoring treated effluent quality control and detecting hazardous contaminants.

CH 569 Special Topics in Environmental Chemistry 3 CH

Topics include: water and wastewater treatment systems; hazardous waste management; environmental regulations; environmental hydrology and water resource management; environmental organic chemistry; atmospheric chemistry and air pollution; chemical toxicology.

CH 571 Polymer Chemistry 3 CH

Prerequisites: CH 222 Organic Chemistry II or equivalent and CH 331 Physical Chemistry I or equivalent or permission of program director. An introduction to polymer chemistry through a study of step and chain polymerization and copolymerization as well as block and graft copolymers. Polymerization techniques in solution, emulsion and microemulsion are discussed as well as polymer structure and characterization with an overview of the properties of commercial polymers.

CH 590 Chemical Information: Sources and Technology 3 CH

Information is a vital key to success in today's chemical industry. The premier chemical information sources will be reviewed with emphasis on Chemical Abstracts Service and Beilstein. Chemical information retrieval applications will be highlighted including STN International, Scifinder and Crossfire, in addition to Internet resources. Students will gain an appreciation for chemical database design and content as well as formulating queries for keyword and structure-based searches.

CH 595 Advanced Integrated Laboratory 3 CH

The central theme for this laboratory is inorganic coordination chemistry. Students are required to work on unified projects rather than a series of unrelated experiments. Projects involve synthesis and analysis of a complex or a pair of isomers. Emphasis is on analytical and instrumental meth-

ods that are fundamental for the characterization of inorganic compounds. Six hours of laboratory work per week.

CH 598 Comprehensive Test 0 CH

Chemistry graduate students (non-thesis track) are required to pass a comprehensive test (after the completion of 33 credits in coursework) in fulfillment of the MS degree.

CH 599 Thesis 3 + 3 CH

Original research under the supervision of faculty member(s) leading to a written thesis.

Computer Science and Information Technology

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The University confers Master of Science degrees in Computer Information Science (MS), with tracks in Information Technology (IT) as well as the traditional Computer Science (CS) discipline. It also offers recognized graduate certificates in Computer Science, Information Technology, E Commerce, IT and Network Security, and Web Development, some of the most lucrative and dynamic fields in the contemporary marketplace. Students choose their curriculum track based on their educational and career interests. Course content includes timely subjects such as VB.net, Flash, Fireworks, Director, Visual Basic, Java, C++, interactive multimedia, data communications, network security, Oracle, Artificial Intelligence (AI) and software engineering.

All classes are held in the evening in Fairfield, with some IT courses offered in Stamford. This structure accommodates working full-time students as well as those who may wish to participate in internships during the day.

Admission Requirements

Applications are processed on a rolling basis. Applicants should have a cumulative undergraduate GPA of 3.0 (on a 4.0 scale) or better. However, students may be admitted provisionally if their cumulative GPA is better than 2.5. Such students are allowed to take up to 12 credit hours and must maintain a 3.0 GPA in those courses. Provisional students who have completed 12 credit hours will then be considered for full matriculation. Except under unusual circumstances, applicants with a cumulative GPA of less than 2.5 are not admitted.

All prospective students must complete an application for admission, submit official transcripts from each college or university attended (including Sacred Heart University) and forward two letters of recommendation and a resumé. Course waivers (to a maximum of nine credits) are granted on the basis of a student's academic record.

Program Prerequisites

Students who do not have a bachelor's degree in Computer Science or in a related field may be required to complete prerequisite coursework before full admission is granted. The number of courses is determined by which track a student chooses to pursue.

Computer Science Track Prerequisite Requirements

The following prerequisite courses may be required for those who wish to pursue the Computer Science track. All courses are to be completed with a grade of B or better. Additional prerequisites may be recommended by the program director. All students are required to complete the following coursework:

Prerequisites

CS 601	Assembly Language Programming and Computer Systems	3 credits
CS 602	Advanced Data Structures and Algorithms	3 credits
Calculus		

Computer Science Track Computer Science Master's Degree Track Program

Sacred Heart University offers both a graduate certificate and a Master of Science degree in this traditional track. This track is ideal for those who wish to pursue advanced study in areas of programming, data structures and fundamental computer language design.

Requirements

This track requires a minimum of 36 credit hours of graduate-level coursework to complete. Students may be required to complete an additional 13 credit hours of prerequisite coursework. Students with an undergraduate degree in Computer or Information Science may receive waivers for some courses. Course waivers are not granted for work experience.

A thesis is not required; however, for those students in the scientific track who elect to complete a thesis, they must enroll in CS 690 Thesis I and CS 691 Thesis II. Those who do not elect to complete a thesis must complete at least three credits of CS 670 Research Project Seminar. A degree will be granted upon satisfactory completion of all coursework and a favorable recommendation of the faculty responsible for CS 670 or 690/691.

Required Courses

CS 551	Introduction to Object-Oriented Programming with Java	3 credits
CS 603	Database Design (Oracle)	3 credits
CS 604	Advanced Software Engineering	3 credits
CS 611	Operating/Multiprogramming Systems	3 credits
CS 614	Theory of Computation	3 credits
CS 615	Unix Programming	3 credits
CS 622	Network Security I	3 credits
CS 623	Advanced Network Security	3 credits
CS 625	Cryptography	3 credits

CS 670	Research Project Seminar	3 credits
or		
CS 690/91	Thesis (I and/or II)	3–6 credits
Electives		3–6 credits
Total		36 credits

Information Technology Track Prerequisite Requirements

The following prerequisite courses may be required for those who wish to enter the Information Technology track. All courses are to be completed with a grade of B or better. Additional prerequisites may be recommended by the program director. Prerequisite courses cannot be taken concurrently.

CS 500	Introduction to Structured Programming	3 credits
CS 501	Introduction to Data Structures	3 credits
Prerequisites total		6 credits

Information Technology Track Information Technology Master's Degree Track Program

The Information Technology (IT) track is a new, innovative program designed specifically to accommodate the dynamic demands of the contemporary marketplace. With the exponential growth of the Internet and the wide-ranging ramifications of the accompanying technologies, the IT track will prepare individuals for careers that utilize, or are affected by, the latest technological advances and methods of modern business and industry.

Requirements

This track requires a minimum of 36 credit hours of graduate-level coursework. Students may be required to complete an additional six credit hours of prerequisite coursework. However, students with an undergraduate degree in Computer or Information Science may receive waivers for some courses. Course waivers are not granted for work experience.

Required Courses

CS 551	Introduction to Object-Oriented Programming with Java	3 credits
CS 552	Windows Interface Design (VB.net)	3 credits
CS 553	Web Design with Java Script	3 credits
CS 554	Fundamentals of Interactive Multimedia	3 credits
CS 601	Assembly Language Programming and Computer Systems	3 credits
CS 603	Advanced Database Systems	3 credits
CS 620	Information Analysis and Systems Design	3 credits
CS 621	Principles of Data Communication	3 credits
CS 670	Research Project Seminar	3 credits
Required courses total		27 credits

Elective Courses

(Nine credits are required). A maximum of six credits can be an MBA (BU) offering. It is also at the discretion of the academic program director to approve any other CS or MBA course offering as an appropriate elective.

BU 651	Management of Global Telecommunications	3 credits
BU 652	Project/Program Management	3 credits
BU 653	International Electronic Commerce and the Internet	3 credits
CS 550	Dynamic Web Page Development	3 credits
CS 555	Advanced Scripting with Interactive Media	3 credits
CS 556	Electronic Commerce Technology	3 credits
CS 557	Web Programming with ASP	3 credits
CS 560	Networking Applications (e.g., Microsoft Windows NT)	3 credits
CS 561	Multimedia Authoring (Authorware)	3 credits

CS 604	Advanced Software Engineering	3 credits
CS 611	Operating/Multiprogramming Systems	3 credits
CS 622	Network Security I	3 credits
CS 623	Advanced Network Security	3 credits
CS 624	Hands-on Network Security	3 credits
CS 640	Special Topics in Computer Science	3 credits
Elective courses total		9 credits
Degree total		36 credits

Information Technology Certificate Track Program

A student may choose to enroll in the Information Technology Graduate Certificate program to learn specific skills in the area of Information Technology. The certificate program is ideal for those who are undecided about committing to a full master's degree program, but wish to pursue advanced study in this field.

Requirements

The program requires the student to complete a minimum of 12 semester credit hours of coursework, with a minimum cumulative GPA of 3.0. Students matriculated in the master's program are not eligible for a graduate certificate. However, students who have successfully completed a graduate certificate may apply to the master's program and may be able to use those credits earned in the certificate program toward the master's degree. Contact the program director to determine which, if any, graduate certificate credits may apply. Graduate admissions procedures must be followed.

Prerequisite Courses

CS 500	Introduction to Structured Programming	3 credits
CS 501	Introduction to Data Structures	3 credits

Required Courses

CS 552	Windows Interface Design (VB.net)	3 credits
CS 553	Web Design with Java Script	3 credits
CS 603	Database Design (Oracle)	3 credits

One elective from any available electives approved by program director

Interactive Multimedia Certificate Track Program

In response to the recent growth and use of multimedia applications in the modern business environment, this certificate has been explicitly designed for students who want to focus exclusively on the popular discipline of multimedia.

Requirements

The program requires the student to complete a minimum of 12 semester credit hours of coursework, with a minimum cumulative GPA of 3.0. Regular program prerequisites still apply (CS 500 Introduction to Structured Programming and CS 501 Introduction to Data Structures). Students matriculated in the master's program are not eligible for a graduate certificate. However, students who have successfully completed a graduate certificate may apply to the master's program and may be able to use those credits earned in the certificate program toward the master's degree. Contact the program director to determine which, if any, graduate certificate credits may apply. Graduate admissions procedures must be followed.

Prerequisite Courses (if required)

CS 500	Introduction to Structured Programming	3 credits
CS 501	Introduction to Data Structures	3 credits

Required Courses

CS 553	Java Scripting for Web Design	3 credits
CS 554	Fundamentals of Interactive Multimedia	3 credits

Elective Courses (choose two; other electives may also be available after consultation with the program director)

CS 550	Dynamic Web Page Development	3 credits
CS 552	Windows Interface Design (using VB)	3 credits
CS 555	Advanced Scripting with Interactive Multimedia	3 credits
CS 561	Multimedia Authoring (Authorware)	3 credits
Certificate total		12–18 credits

Web Development Certificate Track Program

This program provides students with the background and technical skills needed for a comprehensive understanding of the development, design and construction of professional web pages.

Requirements

The program requires the student to complete a minimum of 12 semester credit hours of coursework with a minimum cumulative GPA of 3.0. Two program prerequisites apply to those without suitable academic credentials in programming.

Some required courses also require additional prerequisites (e.g., CS 501)

All course credits earned in the program may be applied to the master's program.

Prerequisite Courses (if required)

CS 500	Introduction to Structured Programming	3 credits
CS 501	Introduction to Data Structures	3 credits

Required Courses

CS 550	Dynamic Web Page Development	3 credits
CS 552	Windows Interface Design	3 credits
CS 553	Java Scripting for Web Design	3 credits
CS 557	Web Programming with ASP	3 credits
Certificate total		12–18 credits

IT and Network Security

Our country and, in fact, the entire world have become increasingly dependent on information technology as a means of staying competitive in business, industry, the arts, and commerce of all types. Education, electronic commerce, and the Defense Department are all areas that utilize technology on an exponentially expanding level with each passing year. But this dependence on and utilization of technology are accompanied by a growing risk of security issues that must be addressed if we are to thrive and survive in a technology-driven world.

Inadequate security practices have left corporations vulnerable to a number of illegal activities such as computer fraud, telecommunications abuse, and unauthorized disclosure, modification, and destruction of information. National security has been and will continue to be threatened unless corporations and the government on all levels are able to effect and maintain sufficient computer security.

The certificate program in IT and Network Security is designed to provide individuals with introductory networking, ethical, and security skills to effectively address the areas of concern mentioned above. The courses in the certificate program:

- provide an overview of networking protocols and how they can be secured;
- introduce the individual to an array of social and ethical issues that are incumbent on those in providing security;
- provide the individual with an introduction to computer programming, as it relates to the maintenance of security protocols.

Upon completion of the certificate program, the student will be better equipped to enter or continue as a professional in the cyber security field.

Requirements

The certificate requires a total of 12 credits plus

two prerequisite courses (CS 500 and CS 501). Prerequisite courses may be waived if evidence of prior completion of these prerequisites can be supplied. Courses taken for the certificate can be applied toward the MSCIS degree.

Prerequisite Courses (if required)

CS 500	Introduction to Structured Programming	3 credits
CS 501	Introduction to Data Structures	3 credits

Required Courses

CS 621	Principles of Data Communication	3 credits
CS 622	Network Security I	3 credits
CS 623	Advanced Network Security	3 credits

Elective Courses

CS 624	Hands-On Network Security	3 credits
CS 625	Cryptography	3 credits

Computer Science and Information Technology Database Certificate

Prerequisites

CS 500	Introduction to Structured Programming	3 credits
CS 501	Introduction to Data Structures	3 credits

Required Courses

CS 603	Database Design (Oracle)	3 credits
CS 631	Data Warehousing	3 credits
CS 632	Advanced Database Topics	3 credits
CS 633	Advanced Database Programming	3 credits

(CS 603 will be a prerequisite for CS 631, CS 632 and CS 633)

Course Descriptions

CS 500 Introduction to Structured Programming 3 CH

This is an introductory course in computer programming using a structured programming lan-

guage. Representative topics include: iteration, selection, procedures, functions, arrays and packages.

CS 501 Introduction to Data Structures 3 CH

Prerequisite: CS 111 or CS 500 Introduction to Structured Programming or equivalent. A continuation of CS 500 utilizing a structured programming language to further implement multidimensional arrays and other data structures including: linked lists, stacks, queues, trees, etc. Also provides introduction to recursion and data abstraction.

CS 502 C: Advanced Programming 3 CH

Prerequisite: CS 112 Data Structures or equivalent, or CS 501 Introduction to Data Structures. Discusses advanced programming techniques with an emphasis on mathematical and scientific programming applications. Topics include: recursion, pointers and some advanced data structures. C language is introduced in this course.

CS 550 Dynamic Web Page Development 3 CH

Prerequisite: CS 500 Introduction to Structured Programming. This course enables students to develop low-bandwidth visual effects for web pages. A variety of software is employed to develop web sites and media for the web. Topics include: web animation and interactivity using Macromedia Flash®, a vector-based animation tool; vector-based graphic construction and digital compression using Macro-media Fireworks®, a graphic optimizing tool; and dynamic web page construction using Macromedia Dreamweaver®, a visual HTML editor.

CS 551 Introduction to Object-Oriented Programming with Java 3 CH

Prerequisite: CS 501 Introduction to Data Structures. Provides an introduction to the funda-

mental concepts of object-oriented analysis (OOA), design (OOD) and programming (OOP), and how object-oriented languages differ from procedural languages. Notation is used to teach the concepts of abstraction, encapsulation, modularity, hierarchy and polymorphism. This course is designed for both programmers and analysts. Both C++ and Java are used to implement these object-oriented concepts.

CS 552 Windows Interface Design (VB.net) 3 CH

Prerequisite: CS 501 Introduction to Data Structures. This course introduces the fundamentals of writing Windows applications, event-driven programming and the GUI. Topics include: dialogues, menus, controls, data types, scope and life of variables, objects and instances, fonts and graphics, simple file I/O and other DLL procedures. VB.net is used in implementing various Windows applications.

CS 553 Web Design with Java Script 3 CH

Prerequisite: CS 500 Introduction to Structured Programming. This course shows how to embed Java “applets” into HTML pages, as well as create applets. The course covers the Java applet paradigm and the standard Java-class libraries. Students write Java applets, stand-alone applications, Native Libraries and content/protocol handlers for extending web browsers.

CS 554 Fundamentals of Interactive Multimedia 3 CH

Prerequisite: CS 500 Introduction to Structured Programming. Students develop multimedia applications of their own design using Macromedia Director®. This course explores principles for effective interactive multimedia design from concept definition, storyboarding, multimedia development and authoring to testing and revision. It covers techniques to include sound, graphics, photographs, animation, video and text into multime-

dia presentations. Macromedia Director movies are developed for use in authoring applications such as business presentations, interactive kiosks, CD-ROMs and Shockwave movies for the web.

CS 555 Advanced Scripting with Interactive Multimedia 3 CH

Prerequisites: CS 501 Introduction to Data Structures and CS 554 Fundamentals of Interactive Multimedia. This advanced multimedia development course explores program control for effective design and delivery of interactive multimedia applications. Students learn how to use the director’s full-feature scripting language Lingo to develop the interactivity and program control of multimedia projects. Xobjects, special code segments that control external devices, are also covered.

CS 557 Web Programming with ASP 3 CH

Prerequisites: CS 501 Introduction to Data Structures and CS 552 Windows Interface Design. Covers Active Server Pages and how they allow for powerful web site creation by combining program code with standard HTML. The class is presented in a tutorial system application. Students will successfully learn how to program using Visual Basic Script, the most commonly used ASP programming language. Other relevant topics include: integrating databases with a web site and effective site functionality.

CS 560 Networking Applications (e.g., MS Windows NT) 3 CH

Prerequisite: CS 500 Introduction to Structured Programs. This hands-on course provides an in-depth introduction to Structured Programming study of data communications and local area network (LAN) systems using Microsoft Windows NT. Topics include: fundamental concepts of data communication; communication standards including codes, protocols and network architecture; bridges, routers and gateways; and networked computer environments.

CS 561 Multimedia Authoring (Authorware) 3 CH

Prerequisite: CS 500 Introduction to Structured Programming. This authoring course covers design and delivery of interactive multimedia using an icon-based product. Students use the authoring tool Authorware to develop a variety of projects: CBT, interactive kiosks, performance-support applications, interactive magazines and catalogs, educational games and interactive education and information that can be delivered over intranets.

CS 601 Assembly Language Programming and Computer Systems 3 CH

Prerequisite: CS 501 Introduction to Data Structures. Explores programming concepts at the interface of hardware and software: addressing, instructions, symbol tables, linkage, registers, ALU and CPU, anatomy of an assembler, relocatable code, macros, interrupts and debuggers.

CS 602 Advanced Data Structures and Algorithms 3 CH

Prerequisites: MA 151 Introductory Calculus, CS 502 C: Advanced Programming and CS 241 Advanced Programming Concepts Using “C.” Explores the relationship between data structures and algorithms with a focus on space and time efficiency: review of recursion, data abstraction and complexity analysis, multilists, trees (including balanced binary trees, n-ary trees and B-trees), hash tables, external sorting, graphs and algorithm design techniques.

CS 603 Database Design (Oracle) 3 CH

Prerequisite: CS 501 Introduction to Data Structures. Discusses goals and techniques in the design, implementation and maintenance of large database management systems: physical and logical organization; file structures; indexing; entity relationship models; hierarchical, network and

relational models; normalization; query languages; and database logic.

CS 604 Advanced Software Engineering 3 CH

Prerequisite: CS 502 C or permission of department. Advanced Programming. Reviews models and metrics for software engineering in the large: software life-cycle models, software modeling tools, design and analysis of software subsystems, management of software projects, test plans, configuration control, reliability and metrics.

CS 605 Discrete Structures and Logic 3 CH

Prerequisites: CS 501 Introduction to Structured Programming and MA 151 Introductory Calculus. Reviews the mathematical concepts and foundations of logic for computer science: sets, relations and functions; Boolean algebras; graphs; propositional and predicate logic; notions of logical consequence and provability; soundness and completeness of inference methods; resolution; unification; and introduction to theorem proving.

CS 611 Operating/Multiprogramming Systems 3 CH

Prerequisite: CS 502 C: Advanced Programming. Explores the management of resources in a multi-user system: memory allocation and management, process scheduling, protection, concepts of concurrent processes, study of different operating systems and multiprocessing.

CS 613 Structure of Programming Languages 3 CH

Prerequisite: CS 602 Advanced Data Structures and Algorithms. Discusses the syntax and semantics of programming languages including: an introduction to theory of languages and grammars; concepts of design and implementation of programming languages; and the comparison of different language paradigms such as imperative, functional, logic and object-oriented.

CS 614 Theory of Computation 3 CH

Prerequisite: CS 605 Discrete Structures and Logic. Reviews the theory of the power and limitations of computation and computers: Turing machines, recursive and recursively enumerable functions, equivalence of computing paradigms (Church-Turing thesis), undecidability, intractability and introduction to NP-completeness.

CS 615 Unix Administration

Prerequisite: CS 611 or permission of instructor. Discusses main issues of Unix OS programming and administration. In particular, it explores a popular Unix text editor Emacs, Unix file system, process manipulation, regular expressions and their use, filters, and system administration and security.

CS 620 Information Analysis and System Design 3 CH

Prerequisite: CS 501 Introduction to Data Structures. Discusses the design, analysis and management of information systems: system life-cycle management, hardware and software selection and evaluation, the role of information systems in decision support and other functional areas of business, project management, systems development and analysis, module design and techniques to reduce system complexity.

CS 621 Principles of Data Communication 3 CH

Prerequisite: CS 501 Introduction to Data Structures. A survey of modern data communication techniques, including: data communication and local networking, hardware (e.g., terminals, modems, multiplexors), nodal and host processor architecture, packet switching, network control, protocols, software management and security.

CS 622 Network Security I 3 CH

Prerequisite: CS 621 Principles of Data Communication. Is there a security problem in computing? How do IT and network managers interface with business managers to create a secu-

urity system that meets the needs of both sides of the business? How does network security support the business mission and how many resources is business willing to give to support network security? This course addresses these complex issues. Among the topics covered are: conventional encryption and message confidentiality, public key cryptography and message authentication, authentication applications, e-mail security, IP security, Web security, firewalls, security in mobile networks, and other security issues.

CS 623 Advanced Network Security 3 CH

Prerequisite: CS 622 Network Security I. This is the second course in security that emphasizes security at the system level. The course covers secure encryption, systems, program security (viruses and other malicious code), controls against program threats, protection in general-purpose operating systems, trusted operating systems, database security, security in networks and distributed systems, administering security, and legal and ethical issues in security.

CS 624 Hands-On Network Security 3 CH

Prerequisites: CS 621 Principles of Data Communication and CS 622 Network Security I. Designed for IT graduate students, this course uses VMWare of Connectix Virtual PC to simulate different environments. It examines networking security topics, firewalls (using Linux), packet filters, NAT, PAT, socks and HTTP proxies; public key infrastructure (using Microsoft Certification Server), encryption algorithms, decrypting passwords, dictionary decryption, brute force decryption, certificate servers; and vulnerability assessment, identifying security holes, forensics, tracing, log analysis, Layer 5 vulnerabilities (Services/Daemons and OS), identifying denial of service attack (simulation), identifying a virus/work attack (simulation), packet monitoring (sniffing).

CS 625 Cryptography 3 CH

Prerequisites: CS 605 Discrete Structures and Logic, CS 614 Theory of Computation, CS 621 Principles of Data Communication, CS 622 Network Security I, CS 623 Advanced Network Security, and some course (graduate or undergraduate) that would have included probability theory. Designed for CS graduate students, the course covers theoretical and practical aspects of modern applied computer cryptography. Topics include: block and stream ciphers; hash functions, data authentication, and identification; and digital signatures. Special emphasis is given to public-key cryptosystems. The course includes implementation of various encryption algorithms in different programming systems.

CS 631 Data Warehousing 3 CH

Prerequisites: CS 603 Database Design (Oracle). Provides a comprehensive review of data warehousing technology. Areas of study include the evolution of the modern-day data warehouse; analysis and collection of business data requirements; dimensional modeling; the loading of data using Extraction, Transformation, and Loading (ETL) processes; data quality issues; and reporting from the data warehouse using SQL and Online Analytical Processing (OLAP) techniques. Several Oracle lab experiments are conducted to provide hands-on experience in the areas of data warehouse design, construction, data loading, and essential reporting techniques.

CS 632 Advanced Database Topics 3 CH

Prerequisites: CS 603 Database Design (Oracle). Provides students with an advanced understanding of database technology. In addition to the entity-relationship model, alternate database models (such as EAV and OOD) are investigated. Possible topics include indexing, optimization, XML, on-line analytic processing (OLAP), embedded SQL, locking techniques and parallel and distributed

systems. Specific topics covered and focus of this course changes to reflect modern trends and the latest technology.

CS 633 Advanced Database Programming 3 CH

Prerequisites: CS 603 Database Design (Oracle). Provides students with a thorough understanding of database programming. Students use the latest technology to create front-end applications to hit large-scale backend databases. SQL and stored procedures are used to retrieve data from various data stores. Emphasis is placed on a layered approach to programming. User-friendly design principles and business logic are used to teach students how to implement large-scale windows and/or web applications. The specific technology used will vary to reflect current trends in database programming technology.

CS 640 Special Topics in Computer Science 3 CH

Prerequisites: determined at the time of course offering. Presents one-time and first-time offerings of courses on current topics.

CS 642 Artificial Intelligence 3 CH

Prerequisite: CS 602 Advanced Data Structures and Algorithms. Examines the essentials of artificial intelligence (AI): definition of AI; heuristic, adversary and other search methods for problem solving and games; principles of knowledge representation; AI languages; and survey of applications.

CS 646 Computer Graphics 3 CH

Prerequisite: CS 602 Advanced Data Structures and Algorithms. Reviews the principles of design and use of computer graphics: matrix algebra overview, basic drawing techniques, line and polygon clipping, linear transformations, projections, graphics standards and hardware, raster scan, refresh, storage, hidden line and surface elimination and shading.

CS 648 Distributed Database Systems 3 CH

Prerequisites: CS 603 Advanced Database Systems and CS 611 Operating/Multiprogramming Systems. Explores the problems and opportunities inherent to distributed databases: file allocation, deadlock detection and prevention, synchronization, update consistency, query optimization, fault tolerance, etc.

CS 650 Principles of Natural Language Processing 3 CH

Prerequisite: CS 613 Structure of Programming Languages or CS 642 Artificial Intelligence. Studies the issues arising in computer processing of languages like English and solution techniques: AI principles overview, significance of language structure in extracting meaning, ambiguities, parsing techniques, semantic issues, semantic models, pragmatics, text-based systems and case studies.

CS 652 Neural Networks 3 CH

Prerequisites: MA 151 Introductory Calculus and CS 642 Artificial Intelligence. Discusses neural networks as a computation model complementary to symbolic AI: basic principles, history of neuro-computing, various models and their common ideas, applications in machine learning and pattern recognition and hybrid systems.

CS 654 Object-Oriented Programming Using C++ 3 CH

Prerequisite: CS 502 C: Advanced Programming or equivalent. Reviews the principles of OOP: encapsulation, polymorphism and inheritance. C++ is used as the main vehicle for getting the ideas across. Issues of multiple inheritance, persistence, etc. are covered, and comparison with other OOP languages are made, as time permits.

CS 670 Research Project Seminar 3 CH

Prerequisites: determined by the faculty advisor. Required for the non-thesis option, the student

works with a faculty advisor in defining a short research or implementation project. For a research project, the student surveys relevant literature, critically analyzes the state of the art and possibly synthesizes improvements. For an implementation project, the student implements and tests a solution to the chosen problem; the project could involve a combination of research and implementation. At the end of the project, the student writes a report approved by the faculty member and makes a public presentation of the work.

CS 690 Thesis I 3 CH

Prerequisites: determined by the faculty advisor. Required for the thesis option, the student works with a faculty advisor in defining a substantial research or implementation project. For a research project, the student surveys relevant literature, critically analyzes the state of the art and synthesizes improvements. For an implementation project, the student implements and tests a solution to the chosen problem, comparing it with other work, if any; the project could involve a combination of research and implementation. At the end of this course, the student should have a well-defined problem, have surveyed relevant literature and have made partial progress toward the completion of the work. The student should be ready to make a brief presentation of the work in progress, as required by the advisor. Also, by the end of this course, a proposal describing the work should be written and approved by a thesis committee chosen by the student and the advisor, according to University policy.

CS 691 Thesis II 3 CH

Prerequisite: CS 690 Thesis I. A continuation of CS 690, this course is required for the thesis option. By the end of this course, the student completes the work remaining in the project started in CS 690, as defined by the written proposal. A thesis must be written and defended in front of the thesis committee. The presentation portion of the thesis defense is open to the public.

Religious Studies

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Throughout the history of culture, religion has played an enormous role in shaping and determining human actions, perceptions and institutions. Consequently, the failure to explore the religious dimension of human experience renders that experience largely incomprehensible. None of the disciplines traditionally classified under the rubric of the “humanities” can afford to ignore the basic religious questions, and religious studies itself occupies a central position among these disciplines.

Humanistic in its orientation, the study of religion relies partially on the social sciences for its methodological apparatus. The student of religion must learn concepts from anthropology, sociology and psychology, as well as philosophy, history and literary criticism. Specific courses in the University’s Master of Arts in Religious Studies (MARS) program examine the various symbols and myths, rituals and creeds, events and institutions that illuminate the religious imagination and understanding. In addition, the student is encouraged to investigate the cultural interaction between religion and both the natural sciences and the arts. Methodologically and topically diverse, this program is unified by its commitment to the task of exploring the basic religious beliefs and insights that render human life and experience meaningful.

Goals and Objectives

The Graduate Program in Religious Studies is designed to suit the needs and interests of a wide variety of students. Whether one wishes to prepare for doctoral work in religion, to pursue a career in religious education or to learn more about the world’s religious traditions in order to enrich one’s personal and/or professional life and activi-

ties, the program supplies a broad range of valuable resources. Each graduate student, in consultation with a faculty advisor, is encouraged to select a field of concentration and to plan an appropriate course of study.

In addition to the goals of personal enrichment, this program has proven particularly beneficial in the professional advancement of educators, writers, spiritual directors and directors of religious education. It also offers a strong foundation for students contemplating further study toward a doctoral degree or the ministry.

Students accepted into the program work within four study areas: biblical studies, contemporary religious thought, religion and society and the history of religions.

Biblical Studies

The Biblical Studies area examines the origin and development of the Hebrew and Christian Scriptures, the theology of the writers of the various books and the historical circumstances from which these books emerged in becoming the normative documents for Judaism and Christianity. This area familiarizes students with the tools of biblical criticism and introduces hermeneutical issues.

Contemporary Religious Thought

The modern and postmodern periods in the West have confronted Western religious thinkers with a wide range of challenges and opportunities. Natural science and the technology to which it gives birth are modern phenomena. Modern and postmodern philosophy have produced thinkers such as Kant, Hegel and Heidegger, and have launched movements such as existentialism, phenomenology and linguistic analysis. Modernity has witnessed an unprecedented debate about what constitutes social and political justice. And it is in the modern period that our society has become secularized. The area of Contemporary Religious Thought examines how religious thinkers have articulated

their beliefs within this modern and postmodern context.

Religion and Society

This concentration explores the relationship between religion and ethics. It covers topics such as the history of Christian ethics, religious attitudes toward war and peace, health care ethics and religion and economics.

History of Religions

Students investigate the various world religions as well as other smaller traditions. Attention is given to their historical development, texts, symbols and rituals, and social roles.

Admission Requirements

Applicants must have a strong undergraduate record from an accredited college or university. Official transcripts from all undergraduate and graduate institutions attended must be sent by those institutions to the Office of Graduate Admissions. Two letters of recommendation must accompany the application. A personal interview is required as part of the admission process.

The Graduate Record Examination (GRE) is recommended for all applicants, and in some circumstances it may be required.

MA Thesis/Comprehensive Examination

Upon completing coursework, each MA student must either pass a comprehensive examination or write a master's thesis. The examination provides the opportunity for students to demonstrate a broad understanding of the subject matter delineated by their choice of plans. The examination is administered twice a year in May and December. Contact the director of the MA program for details.

MA Teaching Curriculum

For students interested in pursuing a career in teaching Religious Studies, six graduate credits

may be earned in the University's Master of Arts in Teaching program and transferred to the MARS degree.

Degree Requirements

All MA candidates must complete a total of 33 credit hours of graduate coursework, with a minimum GPA of 3.0. Student performance is reviewed by the graduate faculty at the end of each semester. If a student completes all coursework for the degree with a GPA below 3.0, then the student will be allowed to take a maximum of six additional credit hours of study to raise the average to 3.0. If this 3.0 average is not achieved, the student will not be allowed to take the comprehensive examination or write the thesis and no degree will be awarded. If a grade below C is earned in a required course, that course must be repeated. If a grade below C is earned in an elective course, the student must repeat that course or take another elective. In any case, the original grade is calculated into the GPA.

Required Courses

- RS 501 Phenomenology of Religion 3 credits
- RS 510 Introduction to the Gospels 3 credits

Course Descriptions

RS 501 Phenomenology of Religion 3 CH

Focuses on contemporary methods for the investigation of religion and prepares the student for graduate-level work.

RS 505 Ancient Religions and Cults 3 CH

Explores the beliefs, practices, and teachings of ancient world religions including those of ancient Egypt and Mesopotamia, the mystery cults of the ancient Greco-Roman civilizations, and the religious traditions of pre-Christian northern Europe (Scandinavia) and ancient Iran. The focus of study is on the sacred writings of the religions, with

emphasis on such major topics as deities and divine powers, rituals of birth and death, gender studies, and the relationships between ancient faith traditions and the emergence of monotheism.

RS 510 Introduction to the Gospels 3 CH

Provides a brief history of biblical criticism leading up to an in-depth analysis of the achievements of recent biblical research in the area of New Testament studies.

RS 511 Introduction to the Hebrew Bible 3 CH

Examines the development of Hebrew Bible traditions, as well as the historical rise of the people of Israel; the distinctive religious awareness that accompanied it; and Israel's understanding of God, humanity and history.

RS 514 Introduction to Eastern Religions 3 CH

Explores the religious traditions of Asia, including Hinduism, Buddhism, Taoism, Confucianism and Shinto. Students are introduced to the beliefs and practices of these traditions in their historical context and to manifestations of Eastern religions in the contemporary United States.

RS 515 Introduction to Islam 3 CH

A theological and phenomenological exploration of beliefs, practices, and symbology of Islam, incorporating extensive readings from the *Qur'an*, the hadith and *shari'a*, and Sufism. This course analyzes contemporary topics such as religion and gender, and religion and politics.

RS 516 Religion and Politics 3 CH

Examines the relationship between religion and politics, with a particular focus on the contemporary United States. Various theories of how and why religion influences politics are discussed, and two religious movements—the Christian Right and the Nation of Islam—that have been active in contemporary American politics are examined in detail.

RS 517 Introduction to Western Religions 3 CH

A theological and phenomenological exploration of the beliefs, history and practices of Judaism, Christianity, and Islam with particular emphasis on the sacred scriptures and spiritual traditions of each religion.

RS 519 Women in World Religions 3 CH

An analysis of women's role in Christianity, Judaism, Hinduism, and Islam—both historical and contemporary—using theories and methods of gender study.

RS 520 Women in Christianity 3 CH

A theological, textual and gender-based examination of women in the history of Christianity, incorporating critical analysis of texts written about and by Christian women. Topics include the image of women and woman's spirituality in the Bible, writings of the Church Fathers, mystics, sectarian movements, and the feminist reconstruction of tradition.

RS 522 Women in American Religion 3 CH

A critical analysis of women and religion within the context of American history and culture. This course examines religious writings/narratives by Native American women, and American women in Christianity, Judaism, and Islam. The impact of race, class, history, and/or ethnicity upon religious experience is also explored in the writings of feminist, Womanist (African-American) and *Mujerista* (Latina) theologians.

RS 524 The Gospel of John 3 CH

Provides a critical interpretation of the Gospel of John.

RS 529 Jesus 3 CH

Attempts to recover the words and actions of the historical Jesus through a proper methodological examination of the sources. Special emphasis is given to the parables of Jesus.

RS 530 The Death of Jesus 3 CH

Focuses on the development of the traditions of the death of Jesus that now stand in the Gospels of Matthew, Mark, Luke and John. Focus is on isolating those factors that influenced development as well as historical matters.

RS 531 Resurrection Traditions 3 CH

Examines the development of the Gospel traditions of the resurrection of Jesus.

RS 532 Contemporary Religious Thinkers 3 CH

Examines the selected, representative writings of specific religious thinkers. In any given semester, the course focuses on the work of either an important theologian or a contemporary scholar of religion. (Students should consult the instructor to obtain information concerning the topic for that semester.)

RS 535 Religion and Sexuality 3 CH

Prerequisite: RS 101 Introduction to the Study of Religion. Examines the relationship between religion and sexuality in various world religions. Topics include asceticism vs. eroticism, defining normality and deviance, sex as a means to challenge or maintain the social order, religious responses to the changing sexual morality in contemporary Western society.

RS 538 Spiritual Teachers and Thinkers 3 CH

Explores the representative spiritual writings of a specific religious teacher from the history of the world's religions. Examples of such spiritual teachers include Hildegard of Bingen, Meister Eckhart, George Fox, Teresa of Avila, Ibn al'Arabi, and Martin Buber. Consult instructor for relevant topic.

RS 539 Contemporary Women Religious Thinkers 3 CH

Explores the scholarship of contemporary women theologians and scholars of religion, with a partic-

ular emphasis on the work of women scholars in Christianity, Islam, and Judaism.

RS 540 Understanding Theology 3 CH

Provides an introduction to the nature and role of theology. This course investigates both academic or "public" theology and confessional or Church-centered theology.

RS 541 History of Christian Ethics 3 CH

A survey of the most important thinkers and documents in the history of Christian ethical reflection.

RS 542 Medieval Theology 3 CH

A critical examination of central doctrines of Christianity, Judaism, and Islam as they developed during the Middle Ages. This course analyzes particular modalities of theological expression such as mysticism, sacred art/architecture, and women's visionary writings.

RS 543 The Development of Christian Thought 3 CH

Traces the course of the Church's historical and dogmatic traditions from the New Testament period to the Middle Ages.

RS 545 Contemporary Roman Catholic Thought 3 CH

A survey of the various thinkers and movements that have shaped contemporary Roman Catholic life and thought, including Karl Rahner, the Second Vatican Council and liberation theology.

RS 546 Constructing the Concept of God 3 CH

Explores the development of a concept of God appropriate for modern life. Readings reflect various approaches to the God question, and students are asked to critically dialogue with both the lectures and the readings.

RS 548 Contemporary Protestant Thought**3 CH**

A survey of some of the most important Protestant theologians of the 19th and 20th centuries, including Kierkegaard, Schleiermacher, Barth and Tillich.

RS 549 Contemporary Jewish Thought**3 CH**

Discusses formative thinkers such as Rosenzweig, Buber and Soloveitchik, and significant theological issues such as the significance of the Holocaust in Jewish thought.

RS 550 Introduction to Judaism**3 CH**

This introduction to the Jewish tradition examines the religion's history, world view and practice.

RS 557 Contemporary Moral Problems**3 CH**

Examines selected moral problems that involve a significant conflict of values in our contemporary pluralistic society: sexual ethics, biomedical ethics (abortion, genetic engineering, behavior modification and euthanasia), revolution and violence, environmental quality and population policy.

RS 558 Issues in Religious Ethics**3 CH**

Provides a study of some of the more important issues confronting the contemporary attempt to construct a philosophical and theologically adequate ethical methodology.

RS 559 Faith and Justice**3 CH**

Explores the content, sources, and methods of Catholic social ethics and investigates its relevance to social-ethical problems in both the United States and the global community. Service learning may be required.

RS 560 Bioethics: Religious Approaches**3 CH**

Introduces students to the methods and principles

of biomedical ethics, and explores several ethical issues in medical practice and health care policy. The theoretical frameworks employed include religious-ethical perspectives in Christianity and some other religious traditions, as well as philosophical and social critiques and proposals. Major topics covered include euthanasia, reproductive technologies, human cloning, consent for experimentation, and allocation of health care resources.

RS 561 Symbol, Myth and Ritual**3 CH**

Defines the basic categories of symbol, myth and ritual and explores their religious significance. Theoretical analyses of the symbolic imagination are also examined.

RS 563 Summer Institute**3 CH**

Consult Religious Studies Department for course topics. Courses frequently offered include "The Problem of Evil" and "Spiritual Exercises East and West."

RS 565 Problems in the Philosophy of Religion**3 CH**

Examines some of the principal problems concerning the nature and justification of religious belief and experience from the viewpoints of philosophical analysis and religious existentialism.

RS 567 Mysticism**3 CH**

This course introduces the student to the dimension of spirituality known as mysticism, through readings in and critical analysis of mystical texts of the world's religions, including *Tao te Ching*, the Hindu *Upanishads*, *Zohar* and other Kabbalistic texts, the poets of Sufism, and Christian mystics from the history of Christianity.

RS 568 Classics of Western Spirituality**3 CH**

Provides a close examination of the writings of one or more of the great spiritual masters of the

Western religious traditions (e.g., John of the Cross, Theresa of Avila, Ignatius Loyola, Teilhard de Chardin, Martin Buber and Thomas Merton).

RS 571 Introduction to Catholic Moral Theology 3 CH

Examines the principles of Catholic moral thought as well as particular thinkers of historical and contemporary significance.

RS 573 Women Writers and the Religious Quest 3 CH

Provides an encounter with the experience and stories of Atwood, Lessing, Rich, Chopin and other women writers who provide a new orientation to the sacred.

RS 575 Mystery of Death 3 CH

Death endures as the one certain and inevitable fact of life. It stands as the reality that cannot be ignored when the question of the meaning of human existence is raised. This course explores the revelatory dimensions of death. Course is taken with the permission of the instructor.

RS 589 Religion, War and Peace 3 CH

Examines various religious perspectives on violence, war and the quest for peace.

RS 590 Elementary Hebrew 3 CH

Explores elements of Hebrew grammar and translations of Old Testament prose.

RS 591 Religious Themes in Contemporary Fiction 3 CH

Explores the religious dimensions in the fiction of writers such as Cynthia Ozick, John Cheever, Toni Morrison and Italo Calvino.

RS 594 Elementary New Testament Greek 3 CH

An introduction to the nominal and verbal systems of Hellenistic Greek, this course provides a basis for reading the Greek New Testament.

RS 595 Intermediate New Testament Greek 3 CH

A study of the syntax of Hellenistic Greek in union with selected readings from the Greek New Testament. The aim of the course is to achieve a moderate reading proficiency.

RS 601 Roman Catholic Views of the Church 3 CH

Investigates Catholic thinking and teaching about the nature of the Church.

RS 602 The Roman Catholic Sacraments 3 CH

Explores the history of the sacraments, the theology behind them and their role in contemporary Catholic piety.

RS 612 New Testament Christologies 3 CH

Traces the development of Christological reflection through the New Testament period and the relationship of this reflection to the historical Jesus.

RS 613 The Redaction of the Synoptic Gospels 3 CH

Each of the synoptic Gospels is a work of considered literary composition and theological conception. This course studies the individual contributions of Matthew, Mark and Luke to the New Testament tradition.

RS 669 Religion: Its Social Dimension 3 CH

Applies the insights of sociology to the study of religion. Students are introduced to basic sociological theories and concepts in order to analyze contemporary religious issues such as the debate over women's roles in the Catholic Church, the emergence of new religious groups, and the impact of fundamentalism on American politics. Attention is given to the role religion plays in maintaining or challenging the existing social structure, religion's ability to meet individual needs and the ongoing debate over secularization.