CHEMISTRY DEPARTMENT

2008 Undergraduate Handbook

http://www.siue.edu/artsandsciences/chemistry

The Chemistry Department at SIUE pursues excellence in teaching and research. A number of faculty have achieved national and even international reputations in their areas of chemistry; they are your teachers. You can be proud of the chemistry degree you earn from this department.

Because it is important to take required courses in the right order, you should plan your curriculum with the assistance of your advisor. This Handbook will assist you in your planning and provide information about the Department of Chemistry. Please bring this Handbook with you whenever you meet with your advisor.

The Faculty Members of the Department of Chemistry:

Robert P. Dixon, Ph.D., Associate Professor & Chair	SL 2306
Cristina De Meo, Ph.D., Associate Professor	SL 2323
James E. Eilers, Ph.D., Professor	SL 1228
Donald Flory, Ph.D., Instructor	SL 3315
Thomas Holovics, Ph.D., Instructor	SL 0327
Kevin A. Johnson, Ph.D., Professor	SL 0328
Myron Jones, Ph.D., Instructor	SL 2308
Mary Kaemmerer, Ph.D., Instructor	SL 2325
Sadegh Khazaeli, Ph.D., Professor	SL 2320
Yun Lu, Ph.D., Assistant Professor	SL 2337
Sarah Luesse, Ph.D., Assistant Professor	SL 2222
Lynne Miller, Ph.D., Instructor	SL 0333A
Edward Navarre, Ph.D., Assistant Professor	SL 2327
Lawrence Norcio, Ph.D., Instructor	SL 0333
Leah C. O'Brien, Ph.D., Professor	SL 2322
Timothy B. Patrick, Ph.D., Professor	SL 2226
Masangu Shabangi, Ph.D., Associate Professor	SL 2341
Nahid Shabestary, Ph.D., Associate Professor	SL 2307
Michael Shaw, Ph.D., Professor	SL 2222A
Rebecca Swenson, Ph.D., Instructor	SL 2325
Eric Voss, Ph.D., Associate Professor	SL 2324
Chin-Chuan Wei., Ph.D., Associate Professor	SL 0322
Susan Wiediger, Ph.D., Assistant Professor	SL 2308A

Marinus P. Bardolph, Professor Emeritus
Virginia R. Bryan, Professor Emeritus
F. Henry Firsching, Professor Emeritus
James Hunsley, Assistant Professor Emeritus
Michael S. Matta, Professor Emeritus
James R. McClure, Associate Professor Emeritus
J. Edmund White, Professor Emeritus
Antony C. Wilbraham, Professor Emeritus

TABLE OF CONTENTS

Bachelor of Science/Master of Science Option

Opportunities in Chemistry at SIU Edwardsville

Career Outlook

Many opportunities in a wide variety of fields are open to a person with a chemistry background. Chemists work as analysts, environmentalists, criminologists, librarians, patent examiners, production foremen, researchers, teachers and writers. They work for companies that produce everyday needs such as fertilizers, pharmaceuticals, plastics, processed foods and semi-conductors; for governmental laboratories federal, state and local; in sales; for hospitals; and for high schools, colleges, and universities. Unemployment among chemists reached a historical high of 3% in 1996, and is now down to the usual 2%. In 1998, the median annual salaries for chemists were: $49,600 (B.S degree); $57.7 (M.S.) and $73.3 (Ph.D.). Starting salaries in industry for inexperienced B.S. graduates range from $26,000 to $45,000. Prospects appear bright for employment and salary increases. Search Chemical Jobs World Wide at www.chemjobs.net/chemjobs.html.

Chemists in Industry

More than 60% of all chemists work in private industry. Some conduct research, applying scientific knowledge to the manufacture of new and improved materials. Others in industry are directly involved in on-line production, manufacturing millions of tons of a high-quality product according to a detailed production schedule and budget. Such products might be fertilizers, herbicides, drugs, synthetic fibers, polymers or steels. Other chemists verily the quality of the products, advertise them, call on potential users or apply for a patent. The health and safety of workers in the plant and the potential harm of waste products also may be the responsibility of chemists. Information processing, technical writing and plant management are other industrial positions in which chemists may be found. Some even become the company president.

Chemists in Government

About 10% of all chemists work for government agencies. They may be at one of the national laboratories with special research emphases such as the atmosphere, chemical warfare, nuclear energy or space. They may be involved in setting standards and regulations or in testing to ensure compliance with standards in cosmetics, drugs or foods. Environmental protection at all levels of government is a growing area in need of chemists. Police and fire departments rely more and more on forensic chemistry.

Chemists in Education

More than 20% of all chemists are involved in training new chemists and scientists and in informing non-scientists about the place of chemistry in their lives and its importance for society. The latter role is especially pertinent to the high school teacher who probably sees few future renowned chemists but sees many future citizens. For college professors, class makeup shifts toward science majors. Many college and university professors engage in research projects that serve as training grounds for their students. Although salaries are lower, in general, than those of industrial chemists, chemists in education find rewards in their greater freedom to pursue research, in the variety of' activities, and in the pleasure of helping people develop intellectually.

Chemists in Non-Chemical Professions

Frequently, a person with a chemistry major or minor will enter a career not usually considered chemical. With a degree in law, a chemist may become a patent lawyer or deal with environmental protection or product safety laws. Science reporting and technical writing require a good background in chemistry. Science librarians are needed by industries and universities. Many chemistry majors become dentists, pharmacists, physicians or veterinarians.

Major Programs in Chemistry

In this section we describe the various program options in Chemistry. For each option, a general description of the course requirements taken from the current Announcements is listed first. This is followed by semester-by-semester curriculum guides requiring four academic years. The curriculum guide for an option represents the best advice of the Department of Chemistry for efficiently completing a program option. These guides take into account the mistakes many self-advised students have made in the past, especially taking too many science and math courses, or too many laboratory courses in the same semester.

If you faithfully follow this guide and maintain the required GPA, you will automatically meet all of the requirements for graduation. If you must deviate from the suggested curriculum, you should do so only with the advice and consent of your advisor. A Program Checklist to help you chart your progress is included with each program option.

The Department of Chemistry offers Bachelor of Arts (B.A.) and Bachelor of Science (B.S.) degrees. Two of the B.S. curricula satisfies the guidelines of the American Chemical Society (ACS) for the training of professional chemists, and all graduates with this degree will be certified by the ACS as having completed an approved program. Another B.S. program (Basic Specialization) offers more flexibility in required chemistry courses. The B.A. curriculum has fewer chemistry requirements than the B.S. curriculum and thus is able to accommodate a variety of student goals. There are three B.A. specializations available to you: (a) a flexible program which gives a general introduction to chemistry, and which is supplemented by electives in chemistry or other fields; and (b) two more structured programs which provides pre-professional training for the medical science professions and biochemistry. The B.S. in Secondary Education leads to certification for teaching high school chemistry. The requirements and courses may change; your advisor will have the most recent information. The degree requirements which follow are in addition to the graduation requirements of the University and the College of Arts and Sciences which are listed in Appendix II.

Special Areas in Chemistry

The previous section classifies Chemistry by career areas that chemists may pursue. The following section classifies Chemistry into five major areas of concentration:

1) **Physical Chemists** measure and study the physical properties of substances and try to explain them through mathematically stated theories. A growing subset called ***Computational Chemists*** model chemical behavior with computers.
2) **Organic Chemists** study compounds composed largely of carbon, determining properties and reactions, developing new methods of preparation and seeking new compounds to meet specific needs.
3) **Inorganic Chemists** study compounds of all elements other than carbon, with goals similar to those of organic chemists.
4) **Analytical Chemists** determine the composition of substances and the concentration of mixtures. Sophisticated instrumental techniques, often coupled with computer control and automatic tabulation of data, have replaced many of the traditional "bench" methods.
5) **Biochemists** overlap with biologists, studying the chemical processes in living things, usually involving large and complex organic compounds.

Some chemists work at intersections of these broad areas, such as bio-inorganic chemistry, or at intersections with other sciences, such as chemical physics or environmental chemistry. The undergraduate chemistry student usually does not specialize, but will take at least one course in each of the five major areas.

Educational Preparation

In high school, you should take the strongest college preparatory program that you can. Communication skills are essential, speech as well as grammar and composition. Scientists must use language precisely and properly to exchange information accurately. Math through trigonometry is basic, as are one year of biology, chemistry and physics. Social sciences and a foreign language will round out your general background. You should be prepared to take, in your first term at college, calculus and the University-level chemistry course. At SIUE, students take organic chemistry after their first-year general chemistry course. To apply for formal acceptance as a chemistry major, students must have at least a "C" average in all courses, including electives.

Faculty

All Chemistry faculty at SIUE hold the Ph.D. degree and are active in scholarly research and writing. Most have received outside grants in support of their research, and all have published articles in professional journals. Several are active in professional societies, locally, statewide and nationwide. More detail is available at http://www.siue.edu/artsandsciences/chemistry

Scholarships and Awards

While no special scholarships are reserved for students pursuing a major in Chemistry, SIUE's Office of Student Work and Financial Assistance administers several federal, state and institutional financial aid programs, including scholarships, grants and loans. Early application is advised. In addition, the Chemistry Department hires several student workers to tutor and help prepare for teaching labs. This provides an excellent opportunity for first-hand experience in chemistry. Stipends for summer research projects and cash prizes are available for students who excel at SIUE.

Graduate Study

The Department of Chemistry offers a master's degree and typically has about 35 active graduate students. A student may seek this degree to prepare for an industrial position at a higher level than that usually available to one who holds a bachelor's degree. Others may wish to acquire a specialty in Chemistry or to try graduate work before deciding to seek the doctor's degree. The master's thesis usually is based on laboratory research carried out under the direction of a professor.

Facilities

In addition to the well-equipped laboratories for undergraduate teaching, the SIUE research labs also are available to upper-class majors for carrying out independent projects. The Chemistry Department enjoys significant support, both from within and outside the University, in developing and maintaining its inventory of specialized equipment used for instruction and research. Some of the Department's more specialized and/or major items include:

Varian Unity plus 300 MHz NMR Spectrometer w/Broadband Capability, Auto Sampler, & Variable Temp. Unit
Varian 2000 GC/MS (ion trap technology) / Varian LC/MS / Agilant LC/MS
Bruker ER 200 D EPR Spectrometer / Three FT-IR Spectrometers (one with a long path length gas cell)
One Fluorimeter / Varian Spectra A-10 Atomic Absorption Instrument / Argon ion Laser (Lexel 95)
Agilent 7500 Inductively Coupled Plasma Spectrometer / Conjugated Dye Laser (Lexel 350)
Varian 1000 Atomic Absorption/Atomic Emission Instrument / Hollow Cathode Sputter Source
Varian Cary-3 UV-VIS Spectrophotometer / Perkin-Elmer LS-50B Fluorescence Spectrophotometer
Scanning Tunneling Microscope (Burleigh) / Cyclic Voltammetry, Potentiostat, & other Elctroanaytical Apparatus
Electrophoresis System / Modulus Single Tube Flurometer courtesy of Turner Biosystems
Silicon Graphics Workstation Computer Labs w/Mac's & PC's for Chemical Visualization/Molecular Modeling & other Calculations / Various other UV-VIS Spectrophotometers, Gas Chromatographs, HPLCs, & Apparatus for working under an Inert Atmosphere

The department presently has two small computer labs, and the extensive computer facilities of the University are available to Chemistry students. The University's Lovejoy Library receives the major chemical journals and has large holdings of reference monographs and advanced textbooks.

Student Services

The Chemistry Office is located in room SL 2325 (phone 618-650-2042). If you have a problem with almost anything, an inquiry at the office is the best way to begin to solve it. The following are a few of the other services and activities of the department that are primarily of interest to undergraduate students.

Advisement

Undergraduate students are assigned faculty advisors as soon as they declare a major in Chemistry. You should plan to meet with your advisor each semester to review your progress and to plan your schedule for the following semester. Your advisor is available at other times as well to help you decide your career goals or solve other problems. **Appointments for advisement can be made with the advisor directly.**

Students who are not Chemistry majors may receive advice through the Office of Academic Counseling and Advising. This office maintains files of career information and brochures from many graduate schools. Graduate School recruitment posters from various schools are posted on bulletin boards on the second floor lab wing of the Science Laboratory Building.

Pre-Registration

Pre-registration is available for Chemistry majors. Students are notified of the sign-up date through notices posted in the Science Bldg. Sign-up sheets are posted by faculty advisors on their office doors. Chemistry course schedules are posted in advance on the bulletin board in the hall next to the Chemistry Office.

Mailboxes

Mailboxes, located in the Chemistry Office wing, are provided to all active, declared Chemistry majors. They are used to transmit job opportunities, scheduling information, messages from your instructors and advisors, and so forth. If you are a declared major and you do not have a mailbox, tell one of the departmental secretaries.

Undergraduate Bulletin Board

Notices of general interest to undergraduates are posted on a bulletin board in the hall next to the Chemistry Office or on the Chem Club board in the lab wing next to the Mac Lab.

Research and Job Opportunities

There are many opportunities for student work in departmental research labs on faculty research projects. Students usually undertake research for academic credit, but some professors may have funds available to hire student laboratory workers. Some students work in the research laboratories without course enrollment or pay, simply because they enjoy it. A limited number of senior Chemistry majors are employed as assistants in undergraduate teaching laboratories; a few are employed as student tutors or stockroom assistants.

Tutoring

Tutoring is available at no charge through the Department of Chemistry. Check with your instructor for hours and location. Tutoring services are also available through the Office of Instructional Services located on the first floor of Peck Hall.

Computers

The department shares some computational facilities with other departments. Computers connected to the campus network and the internet are located in Room 1228 and 1211a of the laboratory wing of the Science Laboratory Building. Departmental computers are located in 2229 and 2230 and in several of the chemistry laboratories.

Awards

The department makes a number of awards for academic excellence to undergraduate Chemistry majors. These include the Freshman Award in Chemistry (Chemical Rubber Company), the Senior Student Award in Chemistry (Anheuser-Busch, Inc.), the Junior Chemistry Student Award (Chemical Council of Greater St. Louis), the Undergraduate Award in Analytical Chemistry (American Chemical Society), Outstanding Senior Student in Chemistry (American Institute of Chemistry), the Faye and Phillip Benjamin Award in Chemistry, and the Sigma-Aldrich Co-Op Scholarship. Nominations for these awards are made by faculty from lists of eligible students. The awardees are determined by a faculty committee in early spring.

Student Affiliate (ACS Chem Club)

The ACS Chem Club is open to students with an interest in chemistry. The Chem Club sponsors a variety of social, career, and service activities in the Department of Chemistry. The club is the SIUE chapter of the Student Affiliate of the American Chemical Society. Each year's organizational meeting is announced in the fall semester. You should make every effort to become active in this important student organization.

Probst Lecture

This annual event in memory of William J. Probst, a former member of the Chemistry faculty, is usually scheduled in the spring. The lecture series has attracted many notable scientists among them Nobel Laureates, Roald Hoffman, William J. Lipscomb, Dr. Carl Djerassi, Dr. Melvin S. Newman, and Dr. Jacqueline Barton. All Chemistry students are encouraged to attend the lectures many of our alumni consider to be a "homecoming".

Departmental Academic Standards for All Chemistry Programs

In addition to University and College of Arts and Sciences requirements (Appendix II), the following academic standards should be met by all Chemistry majors:

1. Grades of “C” or better in CHEM 121a and CHEM 121b are required of all Chemistry majors before proceeding into any chemistry courses numbered above 199. Transfer students, upper-division students and others who have not earned a grade of “C” or better in CHEM 121 will be required to do so as a condition for being accepted as a major in Chemistry.
2. No more than 8 semester hours of “D” in any science or mathematics courses may be counted toward a major in Chemistry.

Goals for Baccalaureate Students in Chemistry:

1) Manifest an understanding of those fundamental chemical principles and practices suggested by the American Chemical Society Committee on Professional Training.
2) Demonstrate the applicability of chemical principles and practices in the study and understanding of other fields while recognizing the unifying aspects of knowledge regardless of fields.
3) Be prepared for graduate study in Chemistry and/or related professional fields.
4) Be able to compete successfully for entry-level employment in chemistry or related areas.
5) Be able to communicate orally and in writing about the impact of chemistry in society, historical advances in chemistry, and ethical issues in chemistry.

As an assessment of how well these goals are met all majors must complete the **Senior Assignment**:

- Students are required to present a poster (with a 10-15 minute oral presentation and defense) or a PowerPoint presentation.
- Students are encouraged to present results from their own research projects. Otherwise topics from the chemical literature may be presented.
- All topics are pre-approved by the instructor and/or the Student Standards and Assessment Committee.
- All students are expected to do library work and gather and evaluate the information obtained.
- All departmental faculty are responsible for evaluating the resulting projects.
- CHEM 499 (Senior Assignment) for zero credit hours is required for graduation.

SUGGESTED CURRICULUM GUIDES

List of Abbreviations

BIOL	Biology
CHEM	Chemistry
CHEM ELECT	Chemistry Electives
CI	Curriculum & Instruction
CS	Computer Science
ELECT	General Electives
ENG	English
EPFR	Educ, Psych, Foundations & Research
FL	Foreign Language
FA/H ADV	Fine Arts and Humanities, Advanced
FA/H INTR	Fine Arts and Humanities, Introductory
GEN ED	General Education
IS	Interdisciplinary
SCI	Science
SPC	Speech Communication
SPE	Special Education
SS ADV	Social Sciences, Advanced
SS INTR	Social Sciences, Introductory
STAT	Statistics

NOTE: *The curriculum guides include General Education program 1993 requirements.*

Bachelor of Science Degree, Chemistry - American Chemical Society (ACS) Approved

The Bachelor of Science degree does not require a minor.

General Education Requirements……...42-44

The General Education Curriculum requires 42 or 44 hours of General Education credit. Introductory and Distribution courses in the areas of Natural Sciences and Mathematics are satisfied by required courses; and the required computer science or statistic course satisfies one of the Skills Courses requirements.

Interdisciplinary and other Special Requirements……3-12

An Interdisciplinary Course (3 hours), a Constitution Requirement (either a 3 hour course or via proficiency exam), and 6 hours from Intergroup Relations, International Culture, or International Issues are required. Some of these can also be used to satisfy other General Education requirements.

Chemistry Requirements…….....48

Chemistry 121a,b	8
Chemistry 125a,b	2
Chemistry 241a,b	6
Chemistry 245	2
Chemistry 331	3
Chemistry 335	1
Chemistry 361a,b	6
Chemistry 365a,b	3
Chemistry 411	3
Chemistry 415	2
Chemistry 431	3
Chemistry 435	1
Chemistry 451a[1]	3
Chemistry 499	0

Additional 3 semester hours from one of the following chemistry courses:

CHEM 419, 439, 441, 444, 449, 451b (or BIOL 430b), 459, 469, 471, 479	3

Additional 2 semester hours from one of the following chemistry courses:

CHEM 345, 396, 455, 496	2

Mathematics Requirements…….....10

Mathematics 135 (only if Calc 2 taken at another school; see advisor!)	1
Mathematics 150	5
Mathematics 152	5

Computer Science Requirement…….3

One of CS140 or 141 or STAT 107, 244, 380, or 480	3

Physics Requirements……10

Physics 150a,b	8
Physics 151a,b	2

Electives to complete required total of 124……...…...(12-21)

Minimum Required 124

[1]Biology 332 (3) or Biology 430a (3) may be substituted for this course.

Students planning to major in Chemistry (ACS degree) should begin their Math and Chemistry courses as soon as possible in the freshman year in order to complete the degree in four years.

Recommended "out of department" electives (choose according to interests and career goals):
Math: Calculus 3, Differential Equations, Engineering Mathematics, Statistics (Math 480)
Biology: Cell & Molecular, Genetics, Immunology, Microbiology, Recombinant DNA, BIO 431

Physics: Modern Physics, Optics, Light & Color
Computer Science: 150,151,404
Other: Scientific Drawing, Economics, Accounting, GBA 300, Management, Environmental Geochemistry, Graphical Information Systems, Finance, Foreign Languages, History of Chemistry, more Communications

Four-Year Program: B.S., Chemistry - (ACS) Approved

Fall		Spring	
1st Year			
CHEM 121a	4	CHEM 121b	4
CHEM 125a	1	CHEM 125b	1
MATH 150	5	MATH 152	5
GEN ED	6	GEN ED	6
	16		16
2nd Year			
CHEM 241a	3	CHEM 241b	3
CHEM 331*	3	PHYS 150b	4
CHEM 335*	1	MATH 135**	(1)
PHYS 150a	4	PHYS 151b	1
PHYS 151a	1	CHEM 245	2
CS 140 or 141	3	ELECT	3
		GEN ED	3
	15		16
3rd Year			
CHEM 361a	3	CHEM 361b	3
CHEM 365a	2	CHEM 365b	1
CHEM 451a***	3	CHEM ELECT	2-3
GEN ED	6	CHEM ELECT	6
		GEN ED	3
	14		15-16
4th Year			
CHEM 411	3	CHEM 431	3
CHEM 415	2	CHEM 435	1
GEN ED	3	CHEM 499	0
CHEM ELECT	3-2	CHEM ELECT	6
CHEM ELECT	6	GEN ED	6
	17-16		16

*This is a fairly difficult semester. Many students elect to take 331& 335 either in the summer before or the summer after their 2nd Year. If you do so, you may want to put an elective here. Others choose to make Year 3 the tough one by postponing 331.

** MATH 135 is included in MATH 152 if you do it at SIUE.

***CHEM 451a,b may be postponed to Year 4. Substitute CHEM ELECT or CHEM 331, if not already completed.

CHEM ELECTS must total at least 3 senior-level lecture hours and 2 advanced lab hours. You have lots of flexibility as to scheduling GEN ED's, ELECT's, and CHEM ELECT's. However most CHEM ELECT's have extensive prerequisites; none are offered every semester, and some will not be offered every year. CHEM 496 (research) is highly recommended for some of the elective hours.

B.S., Chemistry - (ACS) Approved – CHECKLIST

124 credit hours minimum

revised 9/7/00 JRH

GENERAL EDUCATION: Choose Option A or Option B with Foreign Language (recommended)

Skills (15-17 hours)

		Course	Term	Grade
English 101	(3)		____	____
English 102	(3)		____	____
CS 140 or STAT 107, 244, 380, 480	(3)	_____	____	____
Option A: Speech	(3)	_____	____	____
Option A: Phil 106	(3)		____	____
Option B: For. Lang.	(4)	_____	____	____
Option B: For. Lang.	(4)	_____	____	____

Introductory Courses (18 hours) Choose 3 from 1st 4:

Fine Arts/Humanities	(3)	_____	____	____
Fine Arts/Humanities	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Math 150	(5)		____	____
Physics 150a[1]	(4)		____	____

Distribution Courses (10 hours)

		Course	Term	Grade
Fine Arts/Hum.	(3)	_____	____	____
Physics 150b[1]	(4)		____	____
Social Sciences	(3)	_____	____	____

Special Requirements (6 hours)

May count for Distribution - General Education

Intergroup Relations and choose 1 of:	(3)	_____	____	____
International Issues or	(3)	_____	____	____
International Culture	(3)	_____	____	____
Interdisciplinary Studies	**(3)**	_____	____	____

[1]Lab required, see below

Associates Degree – General Education waived except for Constitutional Requirement (3 hours)
May count for Distribution – Social Sciences.

Const. Requirement	**(3)**	_____	____	____

REQUIRED COURSES (84 hours)

Chemistry 121a	(4)		____	____
Chemistry 125a	(1)		____	____
Chemistry 121b	(4)		____	____
Chemistry 125b	(1)		____	____
Chemistry 241a	(3)		____	____
Chemistry 241b	(3)		____	____
Chemistry 245	(2)		____	____
Chemistry 331	(3)		____	____
Chemistry 335	(1)		____	____
Chemistry 361a	(3)		____	____
Chemistry 361b	(3)		____	____
Chemistry 365a	(2)		____	____
Chemistry 365b	(1)		____	____
Chemistry 411	(3)		____	____
Chemistry 415	(2)		____	____
Chemistry 431	(3)		____	____
Chemistry 435	(1)		____	____
Chemistry 451a	(3)		____	____
Chemistry 499	(0)		____	____
[2]Chemistry Elective, Grp.1	(3)	_____	____	____
[3]Chemistry Elective, Grp.2	(2)	_____	____	____
_____	( )	_____	____	____

Physics 151a[1]	(1)		____	____
Physics 151b[1]	(1)		____	____
Math 152	(5)		____	____

Electives to reach 124 hours (12-14 hours)

Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____

[2]Chemistry Elective, Group 1: 419, 439, 441, 444, 449, 451b (or BIOL 430b), 459, 469, 471, 479
[3]Chemistry Elective, Group 2: 345, 396, 455, 496

Bachelor of Science, BioChemistry - American Chemical Society (ACS) Approved

General Education Requirements……...42-44
General Education requires 42 to 44 hours of credit. Introductory and Distribution Course in the area of Natural Sciences and Mathematics are satisfied by required courses in the curriculum and a Computer Science or Statistics course fulfills one of the Skills Course requirements.
Option B with a Foreign Language is strongly recommended.

Interdisciplinary and other Special Requirements……..….3-9
An Interdisciplinary Course (3 hours) and (6 hours) from Intergroup Relations, International Culture, or International Issues are University requirements. Some of these can also be used to satisfy the General Education requirements.

Chemistry Requirements……55

CHEM 121 a,b	8
CHEM 125 a,b	2
CHEM 241 a,b	6
CHEM 245	2
CHEM 331	3
CHEM 335	1
CHEM 361 a,b	6
CHEM 365 a,b	3
CHEM 396	2
CHEM 411	3
CHEM 415	2
CHEM 431	3
CHEM 435	1
CHEM 451 a&b	6
CHEM 455	2
CHEM 459	3
CHEM 496	2
CHEM 499	0

Biology Requirements……..…..16

BIOL 150	4
BIOL 151	4
BIOL 220	4
BIOL 319	4

Mathematics Requirements……..10

MATH 150#	5
MATH 152	5

Computer Science or Statistics Requirements……..3

CS 140 or STAT 107, 244, 380, 480*	3

Physics Requirements……..…..10

PHYS 150 a#, b$	8
PHYS 151 a,b	2

Minimum Total Credit Hours Required……...…124
Students admitted to a health professions school at the end of their junior year may transfer appropriate health professions school credits to complete the requirements for a degree in Chemistry from SIUE.

**** = used as skill course***
 # = used as intro course
$ = used as dist. course

Four-Year Program: B.S., BioChemistry - (ACS) Approved

	FALL		SPRING	
YEAR 1	Eng 101	3	Eng 102	3
	Chem 121a	4	Chem 121b	4
	Chem 125a	1	Chem 125b	1
	Math 150	5	Math 152	5
	Spc 103/IGR	3	Biology 150	4
		16		17
YEAR 2	Chem 241a	3	Chem 241b	3
	Phys 150a	4	Chem 245	2
	Phys 151a	1	Phys 150b	4
	Chem 331	3	Phys 151b	1
	Chem 335	1	Phil 106	3
	Biology 151	4	Biology 220	4
		16		17
YEAR 3	Chem 361a	3	Chem 361b	3
	Chem 365a	2	Chem 365b	1
	Chem 451a	3	Chem 451b	3
	Biology 319	4	Chem 455	2
	Intro SS-1	3	Chem 396	2
	Intro FAH-1	3	Intro FAH-2/SS-2	3
		18		14
YEAR 4				
	Chem 411	3	Chem 431	3
	Chem 415	2	Chem 435	1
	Chem 459	3	Chem 499	0
	Dist FAH	3	II/IC*	3
	Chem 496	2	IS	3
	CS/STAT	3	Dist SS	3
		16		13

Total Credit Hours = 125 to 128 with 104 required hours in Math and the Science

SPC 103 recommended (also satisfies Intergroup Relations requirement).

*Course taken to fulfill this requirement may also satisfy a General Education requirement. Refer to the Undergraduate Catalog for a list of approved courses.

B.S., BioChemistry - (ACS) Approved – CHECKLIST

124 credit hrs min

GENERAL EDUCATION: Choose Option A or Option B with Foreign Language (recommended)

Skills (15-17 hours)

		Course	Term	Grade
English 101	(3)		____	____
English 102	(3)		____	____
CS 140 or STAT 107, 244, 380, 480	(3)	_____	____	____
Option A: Speech 103	(3)	_____	____	____
Option A: PHIL 106	(3)		____	____
Option B: For. Lang. 101	(4)	_____	____	____
Option B: For. Lang. 102[+]	(4)	_____	____	____

Introductory Courses (18 hours) Choose 3 from 1st 4:

Fine Arts/Humanities	(3)	_____	____	____
Fine Arts/Humanities	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Math 150	(5)		____	____
Physics 150a[1]	(4)		____	____

[1]Lab required, see below

Associates Degree – General Education waived except for:

Const. Requirement	**(3)**	_____	____	____

Distribution Courses (10 hours)

		Course	Term	Grade
Fine Arts/Hum.	(3)	_____	____	____
Physics 150b[1]	(4)		____	____
Social Sciences	(3)	_____	____	____

Special Requirements (6 hours)

May count for Distribution - General Education

Intergroup Relations and choose 1 of:	(3)	_____	____	____
International Issues	(3)	_____	____	____
or				
International Culture	(3)	_____	____	____
Interdisciplinary Studies	**(3)**	_____	____	____

REQUIRED COURSES (84 hours)

Chemistry 121a	(4)	____	____
Chemistry 125a	(1)	____	____
Chemistry 121b	(4)	____	____
Chemistry 125b	(1)	____	____
Chemistry 241a	(3)	____	____
Chemistry 241b	(3)	____	____
Chemistry 245	(2)	____	____
Chemistry 331	(3)	____	____
Chemistry 335	(1)	____	____
Chemistry 361a	(3)	____	____
Chemistry 361b	(3)	____	____
Chemistry 365a	(2)	____	____
Chemistry 365b	(1)	____	____
Chemistry 396	(2)	____	____
Chemistry 411	(3)	____	____
Chemistry 415	(2)	____	____
Chemistry 431	(3)	____	____
Chemistry 451a	(3)	____	____
Chemistry 451b	(3)	____	____
Chemistry 455	(3)	____	____
Chemistry 459	(3)	____	____
Chemistry 496	(2)	____	____
Chemistry 499	(0)	____	____

Physics 151a[1]	(1)		____	____
Physics 151b[1]	(1)		____	____
Math 152	(5)		____	____
Biology 150	(4)	____	____	____
Biology 151	(4)	____	____	____
Biology 220	(4)	____	____	____
Biology 319	(4)	____	____	____

Electives to reach 124 hours

_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____

[+]Speech 103 counts as Intergroup Relations requirement.

Bachelor of Science Degree, Chemistry - Basic Specialization

The Bachelor of Science degree does not require a minor.

General Education Requirements……...42-44

The General Education Curriculum requires 42 or 44 hours of General Education credit. Introductory and Distribution courses in the areas of Natural Sciences and Mathematics are satisfied by required courses; and the required Computer Science or Statistic course satisfies one of the Skills Courses requirements.

Interdisciplinary and other Special Requirements……..3-12

An Interdisciplinary Course (3 hours), a Constitution requirement (either a 3 hour course or via proficiency exam), and (6 hours) from Intergroup Relations, International Culture, or International Issues are required. Some of these can also be used to satisfy other General Education requirements.

Chemistry Requirements ……...43

Chemistry 121a,b 8
Chemistry 125a,b 2
Chemistry 241a,b 6
Chemistry 245 2
Chemistry 331 3
Chemistry 335 1
Chemistry 361a,b 6
Chemistry 365a,b 3
Chemistry 411 3
Chemistry 499 0

Additional 6 semester hours from two of the following Chemistry courses:
CHEM 419, 431, 439, 441, 444, 449, 451a, 451b, 459, 469, 471, 479 6

Additional 3 semester hours from one of the following Chemistry courses:
CHEM 345, 396, 415, 435, 455, 496 3

Mathematics Requirements ……...10

Mathematics 135 (only if Calc 2 taken at another school; see advisor!) 1
Mathematics 150 5
Mathematics 152 5

Computer Science Requirements ……3

One of CS140, 141 *or* STAT 107, 244, 380, 480 3

Physics Requirements ……10

Physics 150a,b 8
Physics 151a,b 2

Electives to Complete..... ……..17-26

Minimum Total Semester Hours Required 124

_____

Recommended "out of department" electives (choose according to interests and career goals):
Math: Calculus 3, Differential Equations, Engineering Mathematics, Statistics (Math 480)
Biology: Cell & Molecular, Genetics, Immunology, Microbiology, Recombinant DNA, BIOL 431
Physics: Modern Physics, Optics, Light & Color
Computer Science: 150,151,404
Other: Scientific Drawing, Economics, Accounting, GBA 300, Management, Environmental Geochemistry, Graphical Information Systems, Finance, Foreign Languages, History of Chemistry, more communications

Four-Year Program: B.S., Chemistry – Basic Specialization

Fall		Spring	
1st Year			
CHEM 121a	4	CHEM 121b	4
CHEM 125a	1	CHEM 125b	1
MATH 150	5	MATH 152	5
GEN ED	6	GEN ED	6
	16		16
2nd Year			
CHEM 241a	3	CHEM 241b	3
CHEM 331*	3	PHYS 150b	4
CHEM 335*	1	MATH 135**	(1)
PHYS 150a	4	PHYS 151b	1
PHYS 151a	1	CHEM 245	2
CS/STAT	3	ELECT	3
		GEN ED	3
	15		16
3rd Year			
CHEM 361a	3	CHEM 361b	3
CHEM 365a	2	CHEM 365b	1
CHEM ELECT	3	CHEM ELECT	2-3
GEN ED	6	(CHEM) ELECT	6
		GEN ED	3
	14		15-16
4th Year			
CHEM 411	3	CHEM ELECT	3
CHEM ELECT	2	CHEM ELECT	1
GEN ED	3	CHEM 499	0
CHEM ELECT	3	(CHEM)ELECT	6
CHEM ELECT	6	GEN ED	6
	17-16		16

* This is a fairly difficult semester. Many students elect to take 331 & 335 either in the summer before or the summer after their 2nd Year. If you do so, you may want to put an elective here. Others choose to make year three the tough one by postponing 331.

** MATH 135 is included in MATH 152, if you do it at SIUE.

CHEM ELECTS must total at least 6 senior-level lecture hours and 3 advanced lab hours. You have lots of flexibility as to scheduling GEN ED'S, ELECT's, and CHEM ELECT's. However most CHEM ELECT's have extensive prerequisites; none are offered every semester, and some will not be offered every year. CHEM 496 (research) is highly recommended for some of the elective hours.

B.S., Chemistry – Basic Specialization - CHECKLIST 124 credit hours minimum

revised 9/7/00 JRH

GENERAL EDUCATION: Choose Option A or Option B with Foreign Language (recommended)

Skills (15-17 hours)

		Course	Term	Grade
English 101	(3)		____	____
English 102	(3)		____	____
CS 140, 141 *or* STAT 107, 244, 380, 480	(3)	_____	____	____
Option A: Speech	(3)	_____	____	____
Option A: Phil. 106	(3)		____	____
Option B: For. Lang.	(4)	_____	____	____
Option B: For. Lang.	(4)	_____	____	____

Introductory Courses (18 hours) Choose 3 from 1st 4:

Fine Arts/Humanities	(3)	_____	____	____
Fine Arts/Humanities	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Social Sciences	(3)			
Math 150	(5)		____	____
Physics 150a[1]	(4)		____	____

[1]lab required, see below

Associates Degree – General Education waived except for Constitutional Requirement (3 hours)
May count for Distribution – Social Sciences.

Const. Requirement (3) _____ ____ ____

Distribution Courses (10 hours)

		Course	Term	Grade
Fine Arts/Hum.	(3)	_____	____	____
Physics 150b[1]	(4)		____	____
Social Sciences	(3)	_____	____	____

Special Requirements (6 hours)
May count for Distribution - General Education

Intergroup Relations and (choose 1):	(3)	_____	____	____
International Issues	(3)	_____	____	____
or				
International Culture	(3)	_____	____	____

Interdisciplinary Studies (3) _____ ____ ____

REQUIRED COURSES (84 hours)

Chemistry 121a	(4)	____	____
Chemistry 125a	(1)	____	____
Chemistry 121b	(4)	____	____
Chemistry 125b	(1)	____	____
Chemistry 241a	(3)	____	____
Chemistry 241b	(3)	____	____
Chemistry 245	(2)	____	____
Chemistry 331	(3)	____	____
Chemistry 335	(1)	____	____
Chemistry 361a	(3)	____	____
Chemistry 361b	(3)	____	____
Chemistry 365a	(2)	____	____
Chemistry 365b	(1)	____	____
Chemistry 411	(3)	____	____
Chemistry 499	(0)	_____	____ ____
[2]Chemistry Elective,Grp.1	(3)	_____	____ ____
[2]Chemistry Elective,Grp.1	(3)	_____	____ ____
[3]Chemistry Elective,Grp.2	(3)	_____	____ ____

Physics 151a[1]	(1)		____	____
Physics 151b[1]	(1)		____	____
Math 152	(5)		____	____

Electives to reach 124 hours (17-19 hours)

Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____

[2]Chemistry Elective, Group 1: 419, 431, 439, 441, 444, 449, 451a, 451b, 459, 469, 471, 479
[3]Chemistry Elective, Group 2: 345, 396, 415, 435, 455, 496

Bachelor of Arts Degree, Chemistry - Basic Specialization

General Education Requirements…….....42-44

The General Education Curriculum requires 42 to 44 hours. Introductory Courses in the Fine Arts and Humanities are satisfied by the Foreign Language (Option B). Introductory and Distribution Courses in the area of Natural Sciences & Mathematics are satisfied by courses required for the major; and the required course in Computer Science or Statistics will fulfill one of the Skills Courses.

Foreign Language……8

Interdisciplinary and other Special Requirements……..3-12

An Interdisciplinary Course (3 hours), a Constitution requirement (either a 3 hour course or via proficiency exam), and 6 hours from Intergroup Relations, International Culture, or International Issues are required. Some of these can also be used to satisfy other General Education requirements.

Chemistry Requirements……...39

Chemistry 121a,b……8
Chemistry 125a,b……2
Chemistry 241a,b……6
Chemistry 245……2
Chemistry 331……3
Chemistry 335……1
Chemistry 361a……...3
Chemistry 365a……...2
Chemistry 499……0

Additional 9 semester hours from three of the following chemistry courses:
CHEM 361b, 411, 419, 431, 439, 441, 444, 449, 451a, 451b, 469, 471, 479…….9
Additional 3 semester hours from one of the following chemistry courses:
CHEM 345, 365b, 396, 415, 435, 455, 496 3

Mathematics Requirements……...10

Mathematics 135 (only if Calc 2 taken at another school; see advisor!) 1
Mathematics 150 5
Mathematics 152 5

Computer Science Requirements……3

one of CS140 or 141 or STAT 107, 244, 380, or 480 3

Physics Requirements……10

Physics 150a,b 8
Physics 151a,b 2
(or Physics 131a,b-10)

Approved Supporting Courses or Minor[1]……12-24

Electives (may include science and/or chemistry courses)**..... ……. 6-21**

Minimum Total Semester Hours Required……124

---

[1]Students may take a minor or they may take a group of courses from more than one department which will support their major educational and career objectives. If they choose the second alternative, the program must include at least four supporting courses that total at least 12 hours of credit; and the choice must be approved in writing by their advisor. Note that the physics and mathematics courses required for the B.A. program do not count as supporting courses.

Recommended "out of department" electives (choose according to interests and career goals):
Math: Calculus 3, Differential Equations, Engineering Mathematics, Statistics (MATH 480)
Biology: Cell & Molecular, Genetics, Immunology, Microbiology, Recombinant DNA, BIOL 431

Physics: Modern Physics, Optics, Light & Color
Computer Science: 150,151,404
Other: Scientific Drawing, Economics, Accounting, GBA 300, Management, Environmental Geochemistry, Graphical Information Systems, Finance, Foreign Languages, History of Chemistry, more communications

Four-Year Program: B.A., Chemistry – Basic Specialization

Fall		Spring	
1st Year			
CHEM 121a	4	CHEM 121b	4
CHEM 125a	1	CHEM 125b	1
MATH 150	5	MATH 152	5
GEN ED	6	MINOR or SC*	3
	16	GEN ED	3
			16
2nd Year			
CHEM 241a	3	CHEM 241b	3
PHYS 150a } or PHYS	4	PHYS 150b } or PHYS	4
PHYS 151a } 131a – (5)	1	PHYS 151b } 131b-(5)	1
MINOR or SC	3	CHEM 245	2
ELECT	3	MINOR or ELECT	3
	14	GEN ED	3
			16
3rd Year			
CHEM 331	3	CHEM ELECT	3
CHEM 335	1	MINOR or SC	3
CHEM 361a	3	MINOR or ELECT	3
CHEM 365a	2	FL**	4
FL**	4	GEN ED	3
GEN ED	3		16
	16		
4th Year			
CHEM 499	0	CHEM ELECT	3
CHEM ELECT	6	MINOR or ELECT	3
MINOR or ELECT	3	ELECT	6
MINOR or SC	3	GEN ED	3
GEN ED	3		15
	15		

*SC = Supporting Courses
**FL = Foreign Language

CHEM ELECTS must total at least 9 junior/ senior level lecture hours and 3 advanced lab hours.
You have lots of flexibility as to scheduling GEN ED'S, ELECT's, and CHEM ELECT's. However most CHEM ELECT's have extensive prerequisites; none are offered every semester, and some will not be offered every year. CHEM 496 (research) is highly recommended for some of the elective hours.

B.A., Chemistry – Basic Specialization – CHECKLIST

124 credit hours minimum

revised 9/7/00 JRH

GENERAL EDUCATION: Option B with Foreign Language

Skills (17 hours)

		Course	Term	Grade
English 101	(3)		____	____
English 102	(3)		____	____
Foreign Language	(4)	_____	____	____
Foreign Language	(4)	_____	____	____
CS 140,141 *or* STAT 107, 244, 380, 480	(3)	_____	____	____

Introductory Courses (15 hours) Choose 3 from 1st 4:

Fine Arts/Humanities	(3)	_____	____	____
Fine Arts/Humanities	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Math 150	(5)		____	____
Physics 150a[1] or 131a	(4/5)	_____	____	____

[1]lab required, see below

Distribution Courses (10-11 hours)

		Course	Term	Grade
Fine Arts/Hum.	(3)	_____	____	____
Physics 150b[1] or 131b	(4/5)	_____	____	____
Social Sciences	(3)	_____	____	____

Special Requirements (6 hours)

May count for Distribution - General Education

Intergroup Relations and choose 1:	(3)	_____	____	____
International Issues	(3)	_____	____	____
or				
International Culture	(3)	_____	____	____

Interdisciplinary Studies (3) _____ ____ ____

Associates Degree – General Education waived except for Constitutional Requirement (3 hours)
May count for Distribution – Social Sciences.

Const. Requirement (3) _____ ____ ____

REQUIRED COURSES (84 hours)

Chemistry 121a	(4)		____	____
Chemistry 125a	(1)		____	____
Chemistry 121b	(4)		____	____
Chemistry 125b	(1)		____	____
Chemistry 241a	(3)		____	____
Chemistry 241b	(3)		____	____
Chemistry 245	(2)		____	____
Chemistry 331	(3)		____	____
Chemistry 335	(1)		____	____
Chemistry 361a	(3)		____	____
Chemistry 365a	(2)		____	____
Chemistry 499	(0)		____	____
[2]Chemistry Elective, Grp.1	(3)	_____	____	____
[2]Chemistry Elective, Grp.1	(3)	_____	____	____
[2]Chemistry Elective, Grp.1	(3)	_____	____	____
[3]Chemistry Elective, Grp 2	(3)	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____

Physics 151a[1]	(1)		____	____
Physics 151b[1]	(1)		____	____
Math 152	(5)		____	____

Approved Supporting Courses or Minor (12-21 hours)

_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____

Electives to reach 124 hours (0-9 hours)

Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____

[2]Chemistry Elective, Group 1: 361b, 411, 419, 431, 439, 441, 444, 449, 451a, 451b, 469, 471, 479

[3]Chemistry Elective, Group 2: 345, 365b, 396, 415, 435, 455, 496

Bachelor of Arts, BioChemistry - BioChemistry Specialization

General Education Requirements ……..42-44
The General Education curriculum requires 42 to 44 hours of credit. Introductory and Distribution Courses in the area of Natural Sciences and Mathematics are satisfied by required courses in the curriculum and a Computer Science or Statistics course fulfills one of the Skills Courses.

Interdisciplinary and other Special Requirements……..3-9
An Interdisciplinary Course (3 hours) and 6 hours from Intergroup Relations, International Culture, or International Issues are University requirements. Some of these can also be used to satisfy the General Education requirements.

Foreign Language Requirements……..8

Chemistry Requirements……..44

CHEM 121a,b……8
CHEM 125a,b……2
CHEM 241a,b……..6
CHEM 245……..2
CHEM 331……....3
CHEM 335……..1
CHEM 361a……..3
CHEM 365a……..2
CHEM 451a,b……..6
CHEM 455……..2
CHEM 459……..3
CHEM 499……..0
Additional 3 semester hours from one of the following Chemistry courses: ……...3
CHEM 361b, 411, 419, 431, 439, 441, 444, 449, 469, 471, 479
Additional 3 semester hours from one the following Chemistry courses: ……..3
CHEM 365b, 396, 415, 435, 496

Biology Requirements……..16

BIOL 150……4
BIOL 151……..4
BIOL 220……4
BIOL 319……4

Mathematics Requirements……..10

MATH 150……..5
MATH 152……..5

Computer Science or Statistics Requirements……..3

CS 140 or STAT 107, 244, 380 or 480……...3

Physics Requirements……....10

PHYS 150a,b……8

PHYS 121a,b……2
(or PHYS 131a,b - 10)

Electives……9-11
(Additional Chemistry and Biology* courses

Minimum Total Credit Hours Required……124

* Additional semester hours from the following Biology courses: BIOL 325, 331, 335, 340

** Students admitted to a health professions school at the end of their junior year may transfer appropriate health professions school credits to complete the requirements for a degree in chemistry from SIUE.

Four-Year Program: B.A., BioChemistry – Bio Chemistry Specialization

	FALL		SPRING	
YEAR 1	ENG 101	3	ENG 102	3
	CHEM 121a	4	CHEM 121b	4
	CHEM 125a	1	CHEM 125b	1
	MATH 150	5	MATH 152	5
	Intro SS-1	3	BIOL 150	4
		16		17
YEAR 2	CHEM 241a	3	CHEM 241b	3
	PHYS 131a or 150a/151a	5	CHEM 245	2
	CHEM 331	3	PHYS 131b or 150b/151b	5
	CHEM 335	2	Intro FAH-1	3
	BIOL 151	4	BIOL 220	4
		17		17
YEAR 3	FL 101	4	FL 102	4
	CHEM 361a	3	CHEM 451b	3
	CHEM 365a	2	CHEM 455	2
	CHEM 451a	3	CHEM Lab Elective	2
	BIOL 319	4	Intro FAH-2/SS-2	3
		16		14
YEAR 4	CHEM Lecture Elective	3	BIOL**/CHEM Elective	3
	CHEM 459	3	CHEM 499	0
	Dist FAH	3	II/IC*	3
	CHEM Lab Elective	1 or 2	IS	3
	CS/STAT	3	Dist SS	3
	IGR*	3		12

Total Credit Hours = 124

CHEM Lecture Elective - choose from: CHEM 361b,411,419,431,439,441,444,449,469,471,479

CHEM Lab Elective - choose from: CHEM 345,365b,396,415,435,455,496.

* Course taken to fulfill this requirement may also satisfy a General Education requirement.
**BIOL: 325, 331, 335, 340

B.S., BioChemistry – CHECKLIST

124 credit hours minimum

GENERAL EDUCATION: Option B with Foreign Language

Skills (17 hours)

		Course	Term	Grade
English 101	(3)		____	____
English 102	(3)		____	____
CS 140 or STAT 107, 244, 380, 480	(3)	_____	____	____
Foreign Lang. 101	(4)	_____	____	____
Foreign Lang. 102[+]	(4)	_____	____	____

Introductory Courses (17-18 hours) Choose 3 from 1st 4:

Fine Arts/Humanities	(3)	_____	____	____
Fine Arts/Humanities	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Biology 150	(4)		____	____
Physics 150a[1] or 131a	(4/5)	_____	____	____

[1]Lab required, see below

Distribution Courses (10-11 hours)

		Course	Term	Grade
Fine Arts/Hum.	(3)	_____	____	____
Physics 150b[1] or 131b	(4/5)	____	____	____
Social Sciences	(3)	_____	____	____

Special Requirements (6 hours)
May count for Distribution - General Education

Intergroup Relations	(3)	_____	____	____
and choose 1:				
International Issues	(3)	____	____	____
or				
International Culture	(3)	_____	____	____

Interdisciplinary Studies (3) _____ ____ ____

Associates Degree – General Education waived except for:

REQUIRED COURSES (84 hours)

Chemistry 121a	(4)	____	____
Chemistry 125a	(1)	____	____
Chemistry 121b	(4)	____	____
Chemistry 125b	(1)	____	____
Chemistry 241a	(3)	____	____
Chemistry 241b	(3)	____	____
Chemistry 245	(2)	____	____
Chemistry 331	(3)	____	____
Chemistry 335	(1)	____	____
Chemistry 361a	(3)	____	____
Chemistry 365a	(2)	____	____
Chemistry 451a	(3)	____	____
Chemistry 451b	(3)	____	____
Chemistry 455	(2)	____	____
Chemistry 459	(3)	____	____

Biology 151	(4)	____	____	____
Biology 220	(4)	____	____	____
Biology 319	(4)	____	____	____
Physics 151a[1]	(1)	____	____	____
Physics 151b[1]	(1)	____	____	____
Math 150	(5)	____	____	____
Math 152	(5)	____	____	____

Chemistry and Biology[4] Electives to reach 124 hours

_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____

Chemistry 499	(0)	____	____	_____	( )	_____	____		
[2]Chemistry Elective,Grp.1	(3)	____	____	_____	( )	_____	____	____	
[3]Chemistry Elective,Grp.2	(3)	____	____	_____	( )	_____	____	____	

[2]Chemistry Elective, Group 1: 361b, 411, 419, 431, 439, 441, 444, 449, 469, 471, 479
[3]Chemistry Elective, Group 2: 365b, 396, 415, 435, 496
[4]Biology: 325, 331, 335, 340
[+]May count as International Culture requirement.

Bachelor of Arts Degree, Chemistry - Medical Science Specialization[1]

General Education Requirements…….....42-44

The General Education Curriculum requires 42 to 44 hours. Introductory Courses in the Fine Arts and Humanities are satisfied by the Foreign Language (Option B). Introductory and Distribution Courses in the area of Natural Sciences & Mathematics are satisfied by courses required for the major, and the required course in Computer Science or Statistics will fulfill one of the Skills Courses.

Foreign Language……8

Interdisciplinary and other Special Requirements……..3-12

An Interdisciplinary Course (3 hours), a constitution requirement (either a 3 hour course or via proficiency exam), and (6 hours) from Intergroup Relations, International Culture, or International Issues are required. Some of these can also be used to satisfy other General Education requirements.

Chemistry Requirements……...39

Chemistry 121a,b 8
Chemistry 125a,b 2
Chemistry 241a,b 6
Chemistry 245 2
Chemistry 331 3
Chemistry 335 1
Chemistry 361a 3
Chemistry 365a 2
Chemistry 451a[2],b 6
Chemistry 499 0

Additional 3 semester hours from one of the following Chemistry courses:
CHEM 361b, 411, 419, 431, 441, 444, 449, 451a, 471, 479 3
Additional 3 semester hours from one of the following Chemistry courses:
CHEM 345,345, 365b, 396, 415, 435, 455, 496 3

Biology Requirements……10

Biology 150 4
6 semester hours from the following biology courses:
BIOL 151, 220, 319, 325, 331, 335, 340…….6-7

Mathematics Requirements……...10

Mathematics 135 (only if Calc 2 taken at another school; see advisor!) ..... ……1
Mathematics 150 5
Mathematics 152 5

Computer Science or Statistics Requirements……...3

CS 140 or STAT 107, 244, 380, 480 3

Physics Requirements……10

Physics 150a,b 8
Physics 151a,b 2
(or Physics 131a,b -10)

Electives to reach 124 total (Additional Chemistry and Biology recommended!)**.....8-19**

Minimum Total Semester Hours Required **124**

[1]Students admitted to a medical school at the end of their junior year may transfer appropriate medical school credits to complete the requirements for a degree in Chemistry from SIUE.

[2]BIOL 332 (3) or BIOL 430a (3) may be substituted for CHEM 451a.

Recommended "out of department" electives (choose according to interests and career goals):
Math: Calculus 3, Differential Equations, Engineering Mathematics, Statistics (Math 480)
Physics: Modern Physics, Optics, Light & Color
Computer Science: 150,151,404
Other: Scientific Drawing, Economics, Accounting, GBA300, Management, Environmental Geochemistry, Graphical Information Systems, Finance, Foreign Languages, History of Chemistry, more Communication.

Four-Year Program: B.A., Chemistry - Medical Science Specialization

Fall		Spring	
1st Year			
CHEM 121a	4	CHEM 121b	4
CHEM 125a	1	CHEM 125b	1
MATH 150	5	MATH 152	5
GEN ED	6	GEN ED	6
	16		16
2nd Year			
CHEM 241a	3	CHEM 241b	3
PHYS 150a } *or* PHYS	4	CHEM 245	2
PHYS 151a } 131a (5)	1	PHYS 150b } *or* PHYS	4
CS 140 *or* 141	3	PHYS 151b } 131b (5)	1
BIOL 150	4	GEN ED	6
	15-16		16-17
3rd Year			
CHEM 331	3	CHEM ELECT	3
CHEM 335	1	BIOL	4-3
CHEM 361a	3	FOR. LANG.	4
CHEM 365a	2	GEN ED	3
FOR. LANG.	4	ELECT	3
GEN ED	3		17-16
	16		
4th Year			
CHEM 451a	3	CHEM 451b	3
GEN ED	3	CHEM ELECT	3
BIOL	3-4	ELECT	6
ELECT	6	CHEM 499	0
	15-16	GEN ED	3
			15

CHEM ELECTS must total at least 3 Junior/ Senior level lecture hours and 3 advanced lab hours.

You have lots of flexibility as to scheduling GEN ED'S, ELECT's, and CHEM ELECT's. However most CHEM ELECT's have extensive prerequisites; none are offered every semester, and some will not be offered every year. CHEM 496 (research) is highly recommended for some of the elective hours.

B.A., Chemistry - Medical Science Specialization – CHECKLIST

124 credit hrs min

revised 9/7/00 JRH

GENERAL EDUCATION: Option B with Foreign Language

Skills (17 hours)

		Course	Term	Grade
English 101	(3)		____	____
English 102	(3)		____	____
Foreign Language	(4)	_____	____	____
Foreign Language	(4)	_____	____	____
CS 140 *or* STAT 107, 244, 380, 480	(3)	_____	____	____

Introductory Courses (17-18 hours) Choose 3 from first 4:

Fine Arts/Humanities	(3)	_____	____	____
Fine Arts/Humanities	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Biology 150	(4)		____	____
Physics 150a[1] or 131a	(4/5)	_____	____	____

Distribution Courses (10-11 hours)

		Course	Term	Grade
Fine Arts/Hum.	(3)	_____	____	____
Physics 150b[1] or 131b	(4/5)	_____	____	____
Social Sciences	(3)	_____	____	____

Special Requirements (6 hours)

May count for Distribution - General Education

Intergroup Relations and choose 1:	(3)	_____	____	____
International Issues *or* International Culture	(3)	_____	____	____
	(3)	_____	____	____
Interdisciplinary Studies	(3)	_____	____	____

[1]*Lab required, see below*

Associates Degree – General Education waived except for Constitutional Requirement (3 hours)
May count for Distribution – Social Sciences.

Const. Requirement **(3)** _____ ____ ____

REQUIRED COURSES (84 hours)

Chemistry 121a	(4)		____	____
Chemistry 125a	(1)		____	____
Chemistry 121b	(4)		____	____
Chemistry 125b	(1)		____	____
Chemistry 241a	(3)		____	____
Chemistry 241b	(3)		____	____
Chemistry 245	(2)		____	____
Chemistry 331	(3)		____	____
Chemistry 335	(1)		____	____
Chemistry 361a	(3)		____	____
Chemistry 365a	(2)		____	____
Chemistry 451a	(3)		____	____
Chemistry 451b	(3)		____	____
Chemistry 499	(0)		____	____
[2]Chemistry Elective, Grp.1	(3)	_____	____	____
[3]Chemistry Elective, Grp.2	(3)	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____

Biology[4]	(3/4)	_____	____	____
Biology[4]	(3/4)	_____	____	____
Physics 151a[1]	(1)		____	____
Physics 151b[1]	(1)		____	____
Math 150	(5)		____	____
Math 152	(5)		____	____

Electives to reach 124 hours (9-11 hours)

Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
Elective	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____

[2]*Chemistry Elective, Group 1: 361b, 411, 419, 431, 439, 441, 444, 449, 459, 469, 471, 479*
[3]*Chemistry Elective, Group 2: 345, 365b, 396, 415, 435, 455, 496*
[4]*Biology: 151, 220, 319, 325, 331, 335, 340*

Bachelor of Science Degree, Chemistry - Secondary Education Specialization[1]

General Education Requirements……...**42-44**

The General Education Curriculum requires 42 or 44 hours of General Education credit. Students must choose Option A and include a statistics course. For teacher certification one must also satisfy some very specific General Education and professional education requirements. See the Secondary Education section of the Undergraduate Catalog. Introductory and Distribution courses in the areas of Natural Sciences and Mathematics are satisfied by required courses; and the required computer science or statistic course satisfies one of the Skills Courses requirements.

Interdisciplinary and other Special Requirements……..**3-12**

An Interdisciplinary Course (3 hours), a constitution requirement (either a 3 hour course or via proficiency exam), and (6 hours) from Intergroup Relations, International Culture, or International Issues are required. Some of these can also be used to satisfy other General Education requirements.

Chemistry Requirements……...**36**

Chemistry 121a,b	8
Chemistry 125a,b	2
Chemistry 241a,b	6
Chemistry 245	2
Chemistry 331	3
Chemistry 335	1
Chemistry 361a	3
Chemistry 365a	2
Chemistry 451a	3
Chemistry 494	3
Chemistry 499	0
Additional 3 semester hours chemistry courses numbered 300 or above.	3

Professional Education Requirements……**28**

Check with education advisor! These change.

SCI 451……..**3**

Mathematics Requirements……...**10**

Mathematics 150	5
Mathematics 152	5

Statistics Requirement……**3**

Pick one: STAT 107, 244, 380, 480	3

Physics Requirements……**10**

Physics 150a,b	8
Physics 151a,b *or* (Physics 131a,b – 10)	2

Biology Requirements……..**8**

Biology 150……4

Biology 151……....4

Minimum Total Semester Hours Required……... 130

[1] Scheduling for the third and fourth years involves coordination between the Chemistry and Secondary Education Departments. Students should contact the Office of Science and Mathematics Education for specific program details.

General Education requirements must meet the requirements for teacher certification.

ENG 101; ENG 102; SPC 103, 104, or 105; CS 108,140, or 141
One literature course; PSYC 111; HIST 200 or 201
POLS 112 (HIST/POLS may also be Constitution requirement);
IS (a course in non-western or third-world culture is required.

A minor, second teaching field, or supporting courses - 12-25 hours - additional coursework is probably required to fulfill this requirement.

Four-Year Program: B.S., Chemistry – Secondary Education Specialization

1st Year

Fall		Spring	
CHEM 121a	4	CHEM 121b	4
CHEM 125a	1	CHEM 125b	1
ENG 101	3	MATH 150	5
GEN ED	9	BIO 150	4
	17	ENG 102	3
			17

2nd Year

CHEM 241a	3	CHEM 241b	3
BIOL 151	4	CHEM 245	2
PHYS 150a (or 131a)	4(5)	PHYS 150b (or 131b)	4(5)
PHYS 151a (or 131a)	1(0)	PHYS 151b (or 131b)	1(0)
MATH 152	5	GEN ED	3
	17	STAT XXX	3
		CI 200	2
			18

3rd Year

CHEM 361a	3	SCI 451	3
CHEM 365a	2	CHEM ELECT	3
CHEM 331	3	IS XXX	3
CHEM 335	1	GEN ED	6
CHEM 451A	3		15
GEN ED	3		
	15		

4th Year

CHEM 494	3	CHEM 499	0
CI 315a	2	CI 315b	2
SPE 400	3	CI 352	10
CI 440	3		12
EPFR 315	3		
EPFR 320	2		
EPFR 321	1		
	17		

B.S., Chemistry - Secondary Education Specialization – CHECKLIST 130 credit hrs min

5/19/2005 EGM

GENERAL EDUCATION: Choose Option A

Skills (15 hours)

		Course	Term	Grade
English 101	(3)		____	____
English 102	(3)		____	____
STAT 107,244,380 or 480	(3)	_____	____	____
Option A: Math 106	(3)		____	____
Option A: Speech 103, 104 or 105	(3)	_____	____	____
or				
Option A: Phil. 106	(3)		____	____

Introductory Courses (15 hours) Choose 3 from 1st 4:

Fine Arts/Humanities	(3)	_____	____	____
Fine Arts/Humanities	(3)	_____	____	____
Social Sciences	(3)	_____	____	____
Social Sciences	(3)			
Math 150	(5)	____	____	
Physics 150a[1]	(4)	____	____	

Distribution Courses (10 hours)

		Course	Term	Grade
Fine Arts/Hum.	(3)	_____	____	____
Physics 150b[1]	(4)		____	____
Social Sciences	(3)	_____	____	____

Special Requirements (6 hours)

One should be chosen to count for Distribution General Education:

Intergroup Relations and choose 1 of:	(3)	_____	____	____
International Issues	(3)	_____	____	____
or				
International Culture	(3)	_____	____	____

Interdisciplinary Studies (3 hours) _____ ____ ____

[1]Lab required, see below

Associates Degree – General Education waived except for Interdisciplinary Studies and Constitutional Requirement (3 hours)
May count for Distribution – Social Sciences.

Const. Requirement (3 hours) _____ ____ ____

REQUIRED COURSES (84 hours)

Chemistry 121a	(4)	____	____	
Chemistry 125a	(1)	____	____	
Chemistry 121b	(4)	____	____	
Chemistry 125b	(1)	____	____	
Chemistry 241a	(3)	____	____	
Chemistry 241b	(3)	____	____	
Chemistry 245	(2)	____	____	
Chemistry 331	(3)	____	____	
Chemistry 335	(1)	____	____	
Chemistry 361a	(3)	____	____	
Chemistry 365a	(2)	____	____	
Chemistry 451a	(3)	____	____	
Chemistry 494	(3)	____	____	
Chemistry 499	(0)	____	____	
[2]Chemistry elective	(3)	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____
_____	( )	_____	____	____

Physics 151a[1]	(1)		____	____
Physics 151b[1]	(1)		____	____
Math 152	(5)		____	____
Biology 150	(4)		____	____
Biology 151	(4)		____	____
Science 451	(3)		____	____
Health Education 201	(3)		____	____

Professional Education Requirement (28 hours)[2 & 3]

(See Secondary Education)

CI 200	(2)	_____	____	____
EPFR 315	(3)	_____	____	____
EPFR 321	(1)	_____	____	____
EPFR 320	(2)	_____	____	____
CI 440	(3)	_____	____	____
CI 400	(3)	_____	____	____
CI 315A&B	(4)	_____	____	____
CI 352	(10)	_____	____	____

[2]Chemistry Elective numbered 300 or above
[2] Registration must be done by education advisor

[3] *Basic Skills Test, Content Area Test, and Professional Test are required at various point in the program.*

Underprepared Students

The curriculum guides on the preceding pages are for students who have adequate preparation in chemistry and mathematics. Students who want to get a chemistry degree but who have an incomplete or deficient science background can catch up and be in sequence at the beginning of their sophomore year if they do one of the following:

Attend Summer School *before* beginning their Freshman Year:

Summer		Fall		Spring	
CHEM 113	3	CHEM 121a	4	CHEM 121b	4
ENG 101 or CS*	3	CHEM 125a	1	CHEM 125b	1
MATH 125	3	MATH 150	5	MATH 152	5
PHYS 119	3	ENG 102	3	GEN ED	6
	12	GEN ED	3		16
			16		

Attend Summer School *at the end* of the Freshman Year:

Fall		Spring		Summer	
CHEM 113	3	CHEM 121a	4	CHEM 121b	4
PHYS 119	3	CHEM 125a	1	CHEM 125b	1
MATH 125	3	MATH 152	5	PHYS 150a	4
GEN ED	3	ENG 102	3	GEN ED	3
ENG 101	3	SPC**	3	MATH 151	4
	15		16		16

Notes:
* CS an introductory Computer Science course
** SPC 103,104, or 105

If a student has a major deficiency in mathematics (not prepared for MATH 125) and/or English (not prepared for ENG 101), the student needs to prepare a five-year plan with the help of an advisor. The first year should be spent on rectifying the deficiencies and taking GEN ED courses, and the student would enter the normal sequence in his/her second year.

Minor in Chemistry Requirements

A minor in chemistry requires 24 hours as follows:

Chemistry 121a,b……8
Chemistry 125a,b……2
Chemistry 241a,b……6
Chemistry 245……......2
Additional 6 semester hours Chemistry courses
numbered 300 or above…….6
Minimum Chemistry Hours Required……...…….24

Appendix I: Listing of Course Numbers and Titles

BIOL (Biology)

111 (3)	Contemporary Biology
150 (4)	Introduction to Biological Sciences I
151 (4)	Introduction to Biological Sciences II
219 (4)	Cell & Molecular Biology
220 (4)	Genetics
240a,b (4,4)	Human Anatomy and Physiology
250 (3)	Bacteriology
325 (4)	Embryology
332 (3)	Basic Biochemistry
335 (3)	Introduction to Immunology
337 (4)	Animal Histology
340 (4)	Physiology
350 (4)	Microbiology
418a (3)	Recombinant DNA
421 (3)	Human Genetics
430a,b, (3,3)	Biochemistry & Molecular Biology
431 (3)	Cellular & Molecular Bases of Medicine
441 (3)	Advanced Physiology
452 (3)	Molecular Genetics
493 (2-8)	Research in Biology

CHEM (Chemistry)

113 (3)	Introduction to Chemistry - for Underprepared or Unprepared Students
121a,b (4,4)	General Chemistry
125a,b, (1,1)	General Chemistry Laboratory
241a,b, (3,3)	Organic Chemistry
245 (2)	Organic Chemistry Laboratory
331 (3)	Quantitative Analytical Chemistry
335 (1)	Quantitative Analytical Chemistry Laboratory
351 (3)	Basic Biochemistry
361a,b (3,3)	Physical Chemistry
365a,b (2,1)	Physical Chemistry Laboratory
411 (3)	Inorganic Chemistry
415 (2)	Inorganic Chemistry Laboratory
431 (3)	Instrumental Analysis
435 (1)	Instrumental Analysis Laboratory
441 (3)	Physical Organic Chemistry
444 (3)	Organic Reactions
451a,b, (3,3)	Biochemistry
455 (2)	Experimental Methods in Biochemistry
471 (3)	Principles of Toxicology
499 (0)	Senior Assignment
396 (2)	Introduction to Research
496 (2-4)	Chemical Problems
419 (1-3)	Special Topics in Inorganic Chemistry
439 (1-3)	Special Topics in Analytical Chemistry

CHEM (Chemistry) – Cont'd.

449 (1-3)	Special Topics in Organic Chemistry
459 (1-3)	Special Topics in Biochemistry
469 (1-3)	Special Topics in Physical Chemistry
479 (1-3)	Special Topics in Environmental Chemistry

CS (Computer Science)

108 (3)	Applied Computer Concepts
140 (3)	Introduction to C++
141 (3)	Introduction to FORTRAN
150 (3)	Introduction to Computing I
151 (3)	Introduction to Computing II
404 (3)	Scientific Computation

MATH (Mathematics)

106 (3)	Deductive Reasoning and Problem-Solving
135 (1)	Elementary Vector Algebra
150 (5)	Calculus I
152 (5)	Calculus II (includes the material in 135; do not take both)
223 (3)	Logic and Mathematical Reasoning
250 (4)	Calculus III
305 (3)	Differential Equations I
321 (3)	Linear Algebra I
421 (3)	Linear Algebra II
464 (3)	Differential Equation II

PHYS (Physics)

131a,b (5,5)	College Physics
150a,b	
151a,b (4,1)	University Physics I
302 (4)	Modern Physics
308 (4)	Introduction to Classical Mechanics
310 (4)	Optics
318 (4)	Theory and Applications of Electronic Measurements
350 (3)	Energy and Environment
355 (3)	Light & Color
365 (3)	Astronomy
403 (3)	Statistical and Thermal Physics
405a,b (3,3)	Electromagnetic Field Theory
415a,b (3,3)	Wave Mechanics & Atomic Physics
417 (3)	Nuclear Physics
450 (3)	Solid State Physics

Appendix II: Graduation Requirements

The General Education 1993 requirements of the University and the College of Arts and Sciences are given below. These requirements should be met if you follow any of the curriculum guides in the Handbook. **It is your responsibility to see that this occurs**. http://www.siue.edu/registrar/catalog_index.shtml

University Requirements

In order to graduate from Southern Illinois University Edwardsville all students must satisfy the following:

- ✓Grade Point Average: GPA of 2.00 or higher is required for graduation.
- ✓General Education Requirement: 48-50 hours as described in various Chemistry program guides. (Options A and B are available. These options are different with respect to Skills Courses.)
- ✓15-17 credit hours in Skill Courses are fulfilled as follows:

Option A

English 101	3
English 102	3
Oral Communication	3
Critical Thinking	3
Statistics or Computer Programming	3
	15

Option B

English 101	3
English 102	3
Foreign Language	8
Other	3
	17

Intergroup Relations and International Issues or International Culture Requirements

The State of Illinois requires that public institutions of higher education include, "in the general education requirements for obtaining a degree, course work on improving human relations to include race, ethnicity, gender and other issues related to improving human relations to address racism and sexual harassment on their campuses." (Section 9.21 if the Board of Higher Education Act.) The University requires that students complete one course which examines intergroup relations in order to meet the State requirement. In addition to an intergroup relations course, students are required to take a second course which examines either international issues or international culture.

Courses that may be taken to satisfy the requirements are listed in the Undergraduate Catalog. In the Course section of the Catalog, courses satisfying the requirements are identified in the course description. Intergroup Relations courses are indicated by [IGR], International Issues courses indicated by [II], and International Culture courses are indicated by [IC].

Courses meeting the Intergroup Relations, International Issues and International Culture requirements may also be used to fulfill major, minor, elective or General Education requirements.

Senior Assignment
Effective fall, 1993, all seniors will be required to complete a senior assignment that demonstrates academic breadth attained through general education courses and proficiency in their academic majors. This requirement stems from the University's belief that the ability to integrate a general education perspective into one's academic discipline is an essential mark of a University-educated person. Faculty in the disciplines will determine appropriate senior assignments. CHEM 499 is designed for this requirement.
(*see* ***Goals for Baccalaureate Students in Chemistry*** *– page 7*)

Departmental Graduation Requirements
The following requirements must be met in order to obtain a degree in Chemistry:

(a) a minimum of 124 hours of acceptable credit with a cumulative GPA of 2.0 or higher;
(b) the minimum number of credit hours required for a particular degree;
(c) at least 12 hours of SIUE credit in major courses numbered above 299 with a cumulative GPA for those courses of 2.0 or above;
(d) a GPA of 2.0 or above in all major courses numbered above 299;
(e) at least 6 hours of credit in major courses numbered above 299 earned at SIUE within 2 years preceding graduation.

Duplicate credits of several types are not applicable toward graduation requirements: credit hours earned (through proficiency, transfer, CLEP, or from a course) after credit has been received for similar or more advanced course work in the same subject at SIUE or elsewhere.

Candidates for the Bachelor of Science degree in Education with a major in Chemistry should meet the same grade point average requirements as other degree candidates and earn either a minimum of 32 hours of credit in the major discipline or a minimum of 24 hours in the major area plus two 18 hour minors in other fields of study.

Additional Academic Options

Double Majors
Interested students may pursue a double major by completing the major requirements in two disciplines.

Bachelor of Science/Master of Science Option
Undergraduates with exceptional academic credentials may be able to earn the bachelor's degree and the Master's degree in either Biology or Chemistry in 5 years of study. Admission to this program is based on departmental recommendation to and approval by the Graduate School. Students who are interested in this program option should seek advice from their faculty advisors early in their junior year.