DEPARTMENT OF CHEMISTRY AND PHYSICS

The Department of Chemistry and Physics offers four-year curricula in both Chemistry and Physics. Since the Chemistry Department is approved by the American Chemical Society (ACS), chemistry graduates may receive diplomas certified by the ACS. Pre-professional programs in engineering, medicine, dentistry, optometry, and pharmacy are also offered.

Students in Medicine and Dentistry are encouraged to complete the requirements for a degree before entering a medical or dental school. However, in the event that a student is accepted into medical or dental school prior to receiving the baccalaureate degree, that student may still become a candidate for the Bachelor of Science degree from Southeastern Louisiana University by completing the following requirements. The student must: (1) complete 90 credit hours (the last 30 in residence), (2) complete 20 hours of chemistry above the freshman level (all chemistry courses must be chosen from those courses required of chemistry majors), (3) complete the Board of Regents General Education Requirements, (4) satisfactorily complete a course of study at either medical or dental school, and (5) be recommended by the SLU Medical Evaluation Committee. At the beginning of the student's final year of medical or dental school the student must: (1) request that the Medical Evaluation Committee recommend her/him to the head of the Department of Chemistry and Physics for graduation, (2) secure and submit an application for graduation from the Southeastern Louisiana University's Records/Registration Office, and (3) pay the diploma fee at the time the completed application is submitted to the Controller's Office.

A similar program exists for Pre-engineering students. The student must: (1) complete 90 credit hours (the last 30 in residence), (2) complete 20 hours of chemistry above the freshman level including Chem 395 and Clab 391 (all chemistry courses must be chosen from those courses required of chemistry majors) or 28 hours of physics at the 200 level or above (all courses must be chosen from those required of physics majors), (3) complete the Board of Regents General Education Requirements, (4) satisfactorily complete an Engineering Degree Program. At the beginning of the student's final year in the Engineering program, the student must (1) request Departmental evaluation of his/her record, (2) secure and submit an application for graduation, and (3) pay the diploma fee at the time the completed application is submitted to the Controller's Office.

HONORS DIPLOMA IN CHEMISTRY

For the Honors Diploma in Chemistry, majors must complete the following requirements:

English 121H	3 hours
English 122H	3 hours
History 101H	3 hours
History 102H	3 hours
Honors 300	1 hours
Foreign Language[1]	12 hours
English 291H, English 292H, History 201H, History 202H, GBIO 151H[2]	3 hours
Chemistry 251, 265, 266, 395, 396, 452, 471, 481[3]	9 hours
Chemistry Laboratory 254, 267, 268, 391, 392, 453, 473, 485[3]	3 hours
Chemistry 411	1 hours
Total	41 hours

[1] Must be from the same language-6 of these hours will be used from free electives
[2] Any of these courses can be substituted for similar major requirements with the approval of the Department Head
[3] Any one of these courses must be completed as an H-option

CHEMISTRY SAFETY POLICY

Laboratories are an integral part of all curricula in the Department. A copy of the safety regulations is provided to every student during the first lab class. Any student who violates the safety policy of the Department is subject to dismissal from the laboratory and withdrawal from the course in which the violation occurred. Departmental policy also requires that any student who drops the lecture must also drop the corresponding laboratory.

PLACEMENT IN CHEMISTRY 121

Students desiring placement in Chemistry 121 must meet at least one of the following conditions.

1. Enhanced ACT mathematics standard score of 21 or higher; or
2. Satisfactory completion of Mathematics 155 or 161 or 165; or
3. Satisfactory score on the Departmental Placement Test which is administered during the orientation period; or
4. Consent of Department Head.

CHEMISTRY

Chemistry is the study of the composition and interaction of all substances. Areas of study range from chemical and instrumental analysis of mixtures to synthesis and characterization of polymers to molecular modeling to the chemistry of the human body and to computational chemistry. The degree program in chemistry at Southeastern is designed to offer the student comprehensive training in modern chemical principles in preparation for a career in industry or the health professions or for graduate study in chemistry or related fields. The study of chemistry is also important for fostering the scientific literacy of students in other disciplines, such as environmental science, law, education, and business.

A Major in Chemistry will be granted upon satisfactory completion of 33-49 credit hours of Chemistry. Candidates for a Major in Chemistry must obtain a minimum grade of C (or better) in the Chemistry core

curriculum which includes CHEM 121, CHEM 122, CHEM 251, CHEM 265, CLAB 123, CLAB 124, CLAB 254, and CLAB 267.

A Minor in Chemistry may be obtained by completing 21 semester hours of chemistry with a GPA of 2.0 in those courses. Applicable courses for the minor are as follows: Chemistry 121-123, Chemistry 122-124, Chemistry 251-254, Chemistry 265-267, Chemistry 266-268, Chemistry 395/391, Chemistry 396/392, Chemistry 471/473, Chemistry 481/485, and Chemistry 482/486.

In order to better meet the needs of the diverse student population, five concentration areas are offered in chemistry. They differ primarily in the balance between the number of hours of chemistry and the number of elective hours required. Which one a given student should choose will depend on their career goals. Even if it is not a degree requirement, all students should consider the benefits of their involvement in supervised undergraduate research (Clab 411) sometime during their Junior or Senior years.

CURRICULUM IN CHEMISTRY
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE
AMERICAN CHEMICAL SOCIETY (ACS) CONCENTRATION

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
††Chemistry 121	3	††Chemistry 122	3
††Chemistry Lab 123	1	††Chemistry Lab 124	1
†Chemistry 150	2	English 102 or 122H	3
English 101 or 121H	3	Math 201	5
Math 200[1]	5	Biological Sciences	4
Communication 211	3		
Southeastern 101	0-3		
	17-20		16

SECOND YEAR

††Chemistry 251	3	†Chemistry 266	3
††Chemistry Lab 254	2	†Chemistry Lab 268	1
††Chemistry 265	3	Physics 222	3
††Chemistry Lab 267	1	Physics Lab 224	1
English 230,231,232, or 322	3	Arts Elective[2]	3
Physics 221	3	Computer Science Elective	3
Physics Lab 223	1		
	16		14

THIRD YEAR

†Chemistry 395	3	English 230,231,232, or 322	3
†Chemistry Lab 391	1	Foreign Language[3]	3
†Chemistry 452	3	Social Science[4]	3
†Chemistry Lab 453	2	†Chemistry 396	3
Foreign Language[3]	3	†Chemistry Lab 392 or 485	1
Elective	3	Elective	3
	15		16

FOURTH YEAR

†Chemistry 471	3	†Chemistry 401	1
†Chemistry Lab 473	1	†Chemistry 404, 412, 462, 482, 491 or 492	3
†Chemistry 481	3	†Chemistry 404, 462, 482, 491 or 492	3
History Elective	3	Electives	7
Social Science[4]	3		
†Chemistry Lab 411	1		
	14		14

Total semester hours required 122-125

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more.

Concentration 1 is strongly recommended for those students who may plan to attend graduate school in chemistry. Students who complete the ACS Certified Curriculum will receive, in addition to their diploma, a certificate from the American Chemical Society.

[1]Math 161 and Math 165 may be used as electives for those student's whose Math ACT score is insufficient for direct entry into Math 200. Students with an ACT Math score of 20 or lower will take Math 155 (5 credit hours) in place of Math 161, which will increase 2 credit hours the total number of hours required for the degree.

[2]Must be selected from Visual Arts, Music, Theater, or Dance.

[3]Must be selected from the same language.

[4]Must be selected from Economics, Geography, Anthropology, Political Science, Psychology, or Sociology.

†All Chemistry courses specified above will be used to calculate the major GPA which must be a degree 2.0.

††Chemistry core curriculum course; grade of "C" or better required. This course will also be used to calculate the major GPA which must be a degree 2.0.

CURRICULUM IN CHEMISTRY
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE
BIOCHEMISTRY CONCENTRATION

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
††Chemistry 121	3	††Chemistry 122	3
††Chemistry Lab 123	1	††Chemistry Lab 124	1
†Chemistry 150	2	English 102 or 122H	3
English 101 or 121H	3	Math 201	5
Math 200[1]	5	Biological Sciences	4
Communications 211	3		
Southeastern 101	0-3		
	17-20		16

SECOND YEAR

††Chemistry 251	3	†Chemistry 266	3
††Chemistry Lab 254	2	†Chemistry Lab 268	1
English 230,231,232, or 322	3	Physics 222	3
Physics 221	3	Physics Lab 224	1
Physics Lab 223	1	Computer Science Elective	3
††Chemistry 265	3	Arts Elective[2]	3
††Chemistry Lab 267	1		
	16		14

THIRD YEAR

†Chemistry 395	3	English 230,231,232, or 322	3
†Chemistry Lab 391	1	Foreign Language[3]	3
†Chemistry 452	3	Social Science[4]	3
†Chemistry Lab 453	2	Concentration Elect[5]	4
Foreign Language[3]	3	†Chemistry 396	3
Elective	3		
	15		16

FOURTH YEAR

Concentration Elect[5]	3	†Chemistry 401	1
Social Science[4]	3	†Chemistry Lab 411	1
History Elective	3	†Chemistry 482	3
Electives	3	†Chemistry Lab 486	1
†Chemistry 481	3	Electives	7
†Chemistry Lab 485	1		
	16		13

Total semester hours required 123-124

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more.

Concentration 2 is recommended for those students who plan to attend graduate school in biochemistry or who are seeking admission into a program in medicine or dentistry.

[1]Math 161 and Math 165 may be used as electives for those student's whose Math ACT score is insufficient for direct entry into Math 200. Students with an ACT Math score of 20 or lower will take Math 155 (5 credit hours) in place of Math 161, which will increase 2 credit hours the total number of hours required for the degree.

[2]Must be selected from Visual Arts, Music, Theater, or Dance.

[3]Must be selected from the same language.

[4]Must be selected from Economics, Geography, Anthropology, Political Science, Psychology, or Sociology.

[5]Concentration electives (7 hrs) must be selected from the following courses: †CHEM 404(1-3), GBIO 200 (3), GBIO 312 (3), or ZOO 392 (4).

†All Chemistry courses specified above will be used to calculate the major GPA which must be a degree 2.0.

††Chemistry core curriculum course; grade of "C" or better required. This course will also be used to calculate the major GPA which must be a degree 2.0.

CURRICULUM IN CHEMISTRY
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE
BUSINESS AND INDUSTRY CONCENTRATION

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
††Chemistry 121	3	††Chemistry 122	3
††Chemistry Lab 123	1	††Chemistry Lab 124	1
†Chemistry 150	2	English 102 or 122H	3
English 101 or 121H	3	Math 201	5
Math 200[1]	5	Biological Sciences	4
Communication 211	3		
Southeastern 101	0-3		

	17-20		16

SECOND YEAR

††Chemistry 251	3	†Chemistry 266	3
††Chemistry Lab 254	2	†Chemistry Lab 268	1
English 230,231,232, or 322	3	Physics 222	3
Physics 221	3	Physics Lab 224	1
Physics Lab 223	1	Computer Science Elective	3
††Chemistry 265	3	Arts Elective[2]	3
††Chemistry Lab 267	1		
	16		14

THIRD YEAR

†Chemistry 395	3	English 230,231,232, or 322	3
†Chemistry Lab 391	1	Foreign Language[3]	3
Foreign Language[3]	3	†Chemistry 396	3
Electives	6	Social Science[4]	3
		Electives	4
	13		16

FOURTH YEAR

†Chemistry 452	3	†Chemistry 401	1
†Chemistry Lab 453	2	Concentration Electives[5]	15
History Elective	3		
Social Sciences[4]	3		
Elective	3		
	14		16

Total semester hours required 122-125

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more.

Concentration 3 is recommended for those students who are planning for a career in industry. The non-chemistry courses have been chosen such that they provide support for additional work either in a Master's in Business or training in Occupational Safety and Health.

[1]Math 161 and Math 165 may be used as electives for those student's whose Math ACT score is insufficient for direct entry into Math 200. Students with an ACT Math score of 20 or lower will take Math 155 (5 credit hours) in place of Math 161, which will increase 2 credit hours the total number of hours required for the degree.

[2]Must be selected from Visual Arts, Music, Theater, or Dance.

[3]Must be selected from the same language.

[4]Must be selected from Economics, Geography, Anthropology, Political Science, Psychology, or Sociology.

[5]Concentration electives (15 hrs) must be selected from the following courses: †CHEM 404 (1-3), †OSH 122 (3), OSH 123 (3), OSH 125 (3), OSH 221 (3), OSH 223 (3), ECON 201 (3), MGMT 231 (3), MGMT 261 (3), MGMT 290 (3), MGMT 351 (3), MGMT 474 (3), ACCT 200 (3), or MRKT 303 (3)...

†All Chemistry courses specified above will be used to calculate the major GPA which must be a degree 2.0.

††Chemistry core curriculum course; grade of "C" or better required. This course will also be used to calculate the major GPA which must be a degree 2.0.

CURRICULUM IN CHEMISTRY
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE
POLITICAL SCIENCE/PRE-LAW CONCENTRATION

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
††Chemistry 121	3	††Chemistry 122	3
††Chemistry Lab 123	1	††Chemistry Lab 124	1
†Chemistry 150	2	English 102 or 122H	3
English 101 or 121H	3	Math 201	5
Math 200[1]	5	Biological Sciences	4
Communication 211	3		
Southeastern 101	0-3		
	17-20		16

SECOND YEAR

††Chemistry 251	3	†Chemistry 266	3
††Chemistry Lab 254	2	†Chemistry Lab 268	1
English 230,231,232, or 322	3	Physics 222	3
Physics 221	3	Physics Lab 224	1
Physics Lab 223	1	Computer Science Elective	3
††Chemistry 265	3	Arts Elective[2]	3
††Chemistry Lab 267	1		
	16		14

THIRD YEAR

†Chemistry 395	3	English 230,231,232, or 322	3

†Chemistry Lab 391	1	Foreign Language[3]	3
Foreign Language[3]	3	†Chemistry 396	3
Electives	6	Social Science[4]	3
Electives	4		
	13		16

FOURTH YEAR

†Chemistry 452	3	†Chemistry 401	1
†Chemistry Lab 453	2	Concentration Electives[5]	15
Social Science[4]	3		
History Elective	3		
Elective	3		
	14		16

Total semester hours required 122-125

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more.

Concentration 4 is designed for those students who may wish to enter the fields of environmental or patent law. The electives have been chosen from those recommended for pre-law students.

[1]Math 161 and Math 165 may be used as electives for those student's whose Math ACT score is insufficient for direct entry into Math 200. Students with an ACT Math score of 20 or lower will take Math 155 (5 credit hours) in place of Math 161, which will increase 2 credit hours the total number of hours required for the degree.

[2]Must be selected from Visual Arts, Music, Theater, or Dance.

[3]Must be selected from the same language.

[4]Must be selected from Economics, Geography, Anthropology, Political Science, Psychology, or Sociology.

[5]Concentration electives (15 hrs) must be selected from the following courses: †CHEM 404(1-3), ECON 201(3), ACCT 200(3), ENGL 321(3), PHIL 313(3), MGMT 232(3), POLI 201(3), or POLI 202(3), POLI 401(3), POLI 406(3), OR POLI 436(3).

†All Chemistry courses specified above will be used to calculate the major GPA which must be a degree 2.0.

††Chemistry core curriculum course; grade of "C" or better required. This course will also be used to calculate the major GPA which must be a degree 2.0.

CURRICULUM IN CHEMISTRY
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE
FORENSIC SCIENCE CONCENTRATION

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
††Chemistry 121	3	††Chemistry 122	3
††Chemistry Lab 123	1	††Chemistry Lab 124	1
†Chemistry 150	2	English 102 or 122H	3
English 101 or 121H	3	Math 200[1]	5
General Biology 151	3	General Biology 153	3
Biology Lab 152	1	Biology Lab 154	1
Communication 211	3		
Southeastern 101	0-3		
	16-19		16

SECOND YEAR

††Chemistry 251	3	†Chemistry 266	3
††Chemistry Lab 254	2	†Chemistry Lab 268	1
Math 201	5	Physics 221	3
††Chemistry 265	3	Physics Lab 223	1
††Chemistry Lab 267	1	Math 241	3
Arts Elective[2]	3	Psychology 101	3
	17		14

THIRD YEAR

†Chemistry 395	3	†Chemistry 396	3
†Chemistry Lab 391	1	English 230,231,232, or 322	3
Physics 222	3	Foreign Language[3]	3
Physics Lab 224	1	Computer Science Elective	3
Foreign Language[3]	3	Concentration Elective[5]	3
Concentration Elective [5]	3		
	14		15

FOURTH YEAR

†Chemistry 452	3	†Chemistry 401	1
†Chemistry Lab 453	2	English 230,231,232, or 322	3
†Chemistry 481	3	Concentration Electives [5]	6
†Chemistry Lab 485	1	Social Science Elective[4]	3
History Elective	3	Elective	3
Concentration Elective [5]	3		

	15	16
Total semester hours required		123-126

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more.

Concentration 5 is designed for those students who may wish to enter the fields of forensic science. The electives have been chosen according to the recommendations of the American Academy of Forensic Sciences.

[1]Math 165 may be used as electives for those student's whose Math ACT score is insufficient for direct entry into Math 200. Students with an ACT Math score of 20 or lower will take Math 155 (5 credit hours) in place of Math 161, which will increase 2 credit hours the total number of hours required for the degree.

[2]Must be selected from Visual Arts, Music, Theater, or Dance.

[3]Must be selected from the same language.

[4]Must be selected from Economics, Anthropology, Political Science, Psychology, or Sociology.

[5]Concentration electives (15 hrs) must be selected from the following courses: CHEM 105, CJ 101, CJ 201, CJ 207, CJ 302, CJ 353, CJ 412 or SOC 412, GBIO 407, or ZOO 332.

†All Chemistry courses specified above will be used to calculate the major GPA which must be a degree 2.0.

††Chemistry core curriculum course; grade of "C" or better required. This course will also be used to calculate the major GPA which must be a degree 2.0.

PHYSICS

The notion that all matter from subatomic particles to galactic clusters obeys a small set of principles that can be modeled mathematically is the fundamental premise of physics. The degree program in physics offers comprehensive training in all four major fields of physics: mechanics, electricity and magnetism, thermodynamics, and quantum mechanics. When combined with the numerous opportunities for undergraduate research in physics, the degree program produces students who are well prepared for a career in industry or for graduate study in physics or engineering.

A major in Physics in the College of Arts, Humanities, and Social Sciences will be given upon satisfactory completion of 46 semester hours of Physics.

A minor in physics will be granted upon satisfactory completion of 20 semester hours in physics at the 200 level or above, eight hours of which must be Physics 221-223 and Physics 222-224.

CURRICULUM IN PHYSICS
LEADING TO THE BACHELOR OF SCIENCE DEGREE

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
Chemistry 121	3	Chemistry 122	3
Chemistry 123	1	Chemistry 124	1
English 101 or 121H	3	English 102 or 122H	3
Math 200[1]	5	Math 201	5
Computer Science 161	3	†Physics 221	3
†Physics 130	1	†Physics 223	1
Southeastern 101	0-3		
	16-19		16

SECOND YEAR

†Physics 222	3	†Physics 301	3
†Physics 224	1	†Physics 303	1
†Physics 321	3	†Physics 351	3
Math 312	3	Computer Science 280	3
English 230, 231, 232 or 322	3	Communication 211	3
History 201 or 202	3		
	16		13

THIRD YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Physics 332	3	†Physics 402	3
†Physics 312	3	†Physics 425	2
†Physics 314	1	Foreign Language 102[3]	3
Math 350	3	Biological Science	4
Social Science[2]	3	Social Science[2]	3
Foreign Language 101[3]	3		
	16		15

FOURTH YEAR

†Physics 331	3	†Physics 422	3
†Physics 421	1	†Physics 401	3
Arts Elective[4]	3	†Physics 430	3
Elective	6	Electives	6
	13		15

Total Semester Hours 122-125 hrs

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more.

[1]Math 161 and Math 165 may be used as electives for those students who must take them before entering Math 200. Students with an ACT Math score of 20 or lower will take Math 155 (5 credit hours) in place of Math 161, which will increase 2 credit hours the total number of hours required for the degree.

[2]Must be selected from Economics, Geography, Anthropology, Political Science, Psychology, or Sociology.

[3]Must be selected from the same language.

[4]Must be selected from Visual Arts, Music, Theater, or Dance.

†All courses labeled with this symbol will be used to calculate the major GPA which must be a degree 2.0 average.

*Extended Option: Secondary Education Certification: See College of Education section, this catalog.

HONORS DIPLOMA IN PHYSICS

For the Honors Diploma in Physics, majors must complete the following requirements:

English 121H	3 hours
English 122H	3 hours
History 101H	3 hours
History 102H	3 hours
Honors 300	1 hour
Foreign Language[1]	12 hours
English 291H, English 292H, History 201H, History 202H, GBIO 151H[2]	3 hours
Physics 301, 312, 321, 331, 351, 401, 402, 421, 422[2]	9 hours
Physics Laboratory 303, 314, 425[3]	3 hours
Physics 411	1 hours
Total	41 hours

[1] Must be from the same language-6 of these hours will be used from free electives

[2] Any of these courses can be substituted for similar major requirements with the approval of the Department Head

[3] Any one of these courses must be completed as an H-option