SPELMAN COLLEGE
CHEMISTRY DEPARTMENT

HANDBOOK

2010-2011

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MISSION STATEMENT

The Chemistry Department at Spelman College seeks to establish itself as a benchmark in the discipline, serving as a model for educating and training undergraduate students in the chemical sciences within a liberal arts context. The Department strives to attain and sustain national prominence by creating a vibrant learning community focused on promoting academic excellence, research training and scientific discovery, as well as lifelong learning. The Department is united in its vision of providing the best possible learning environment for our students that develops their intellectual, ethical, social consciousness and leadership potential and produces graduates who are well prepared for graduate school, professional school, and future careers.

DEPARTMENT HISTORY

The Department of Chemistry was a merged department with the Department at Morehouse College from 1969-1977. In the spring of 1977, due to enrollment pressure at both schools, the respective administrations agreed to dissolve the merger. Each independent department was to teach its own General Chemistry and Organic Chemistry courses, as well as Senior Seminar and Undergraduate Research. Upper-division courses continue to be available to students at both institutions and within the Atlanta University Center (AUC), with faculty expertise dictating the nature of the offerings. Since that time, the Department has grown to include five major options. In spring of 2005, the Chemistry Department curriculum was approved by the American Chemical Society, which allows the Chair to certify those graduates who have completed the requirements set forth by the ACS.

The number of students majoring in the Department of Chemistry has increased from 24 in 1977 to over 100 majors as of the 2008-09 academic year. For several years this group has represented approximately 5% of the College's enrollment. Correspondingly, 5% of the graduating class is typically composed of majors from the department (with the number of graduates ranging over the years from 15-35.) One of the strengths of the department is its faculty, which presently includes thirteen doctorate-level full-time members having specialties in Analytical Chemistry, Biochemistry, Organic Chemistry, Physical (Computational and Biophysical) Chemistry, Environmental Chemistry, and Inorganic Chemistry.

MAJOR OPTIONS

Majors are required to complete ten (10) Chemistry content courses, seven (7) of which must have associated laboratory courses. Seminar and Research courses are not counted as content or laboratory courses. ***Refer to the course sequences on pages 9-13 for specific information regarding these options***.

The following courses are required for all Chemistry options:

- First Year Seminar in Chemistry
- General Chemistry I and II (with labs)
- Organic Chemistry I and II (with labs)
- Physical Chemistry I

Additionally, all options require the following cognate courses:

- Calculus I and II
- Physics I - Mechanics and Physics II – Electricity & Magnetism (both with labs)

The Department of Chemistry offers five (5) major options:

Biochemistry

This sequence is recommended for students planning entry into graduate school in Biochemistry and is also valuable as preparation for entry into medical or dental school or other allied health fields.

Additional required Chemistry courses include:

- Biochemistry I and II (with one lab course)
- Analytical Chemistry (with lab) ***or*** Instrumental Analysis (with lab)
- Physical Chemistry II (with lab)
- Advanced Biochemistry
- Undergraduate Research I and II
- Senior Seminar

The following cognate courses are also required:

- General Biology I and II (with labs)
- 1 Biology or Math Elective

Chemistry – Option 1

This option is recommended for those students seeking entry into graduate school in Chemistry.

Additional required Chemistry courses include:

- Analytical Chemistry (with lab) or an Advanced Chemistry elective (with lab)
- Physical Chemistry II (with lab)
- Inorganic Chemistry (with lab)
- Principles of Biochemistry
- Instrumental Analysis (with lab)
- Senior Seminar

The following cognate courses are recommended:

- Physics III (with lab)
- Differential Equations

Chemistry – Option 2

This sequence is recommended for students planning to enter professional degree programs in medicine, dentistry, allied health fields, or those seeking entry into post-baccalaureate or graduate programs requiring science degrees for admission.

Additional required Chemistry courses include:

- Analytical Chemistry (with lab)
- 4 Advanced Chemistry Electives (two with labs) –
  NOTE: *Biochemistry I and II and the associated lab course are highly recommended*
- Senior Seminar

The following cognate course sequence is also highly recommended (and is required if taking Biochemistry):

- General Biology I and II (with labs)

The following cognate courses are recommended:

- 2 Biology Electives

Chemistry – Teaching Certification

This sequence is recommended for students planning to enter the teaching profession with a certification in secondary education.

Additional required Chemistry courses include:

- Analytical Chemistry (with lab)
- Physical Chemistry II (with lab)
- Biochemical Principles
- 2 Advanced Chemistry Electives (one with lab)
- Senior Seminar

Chemistry/Dual Degree Engineering

A student enrolled in the Dual Degree Engineering Program may earn a joint B.S. degree with a major in chemistry and a Bachelor of Science in an engineering field such as Chemical or Environmental Engineering.

Additional required Chemistry courses include:

- Physical Chemistry II (with lab)
- Inorganic Chemistry (with lab)
- Instrumental Analysis (with lab)
- Advanced Engineering Electives that are chemistry related (Six hours of junior/senior level courses at engineering school with approval of department)

The following cognate courses are also required:

- Calculus III
- Physics III (with lab) – *may not required by all engineering institutions*
- Linear Algebra
- Differential Equations
- Computer Programming

NOTE:

Physical Chemistry 345 & 346 are ***pre***requisites for Inorganic Chemistry 421 for **Option 1** majors; Physical Chemistry 345 is a ***co***requisite for Inorganic Chemistry for **Dual Degree** majors only.

ADDITIONAL COURSE REQUIREMENTS

Divisional Requirements:

One course is required in each of the following divisions: the Humanities (Philosophy, Religion, Language, or Literature), the Fine Arts (Art, Drama, Dance, or Music), and the Social Sciences (Anthropology, Economics, Political Science, Psychology, Sociology, or History.) ***Divisional Requirements are listed in the course sequences below as 1, 2, and 3.*** It is not necessary that these courses be taken at the time specified on the suggested course sequence. Some can be taken during summer school or at different semesters from the ones indicated.

Advanced Chemistry Electives:

Below is a list some advanced courses offered at Spelman and other AUC schools. Other advanced topics are offered periodically and may serve as advanced Chemistry electives with prior department approval.

- Advanced Biochemistry
- Advanced Organic Chemistry
- Advanced Physical Chemistry
- Inorganic Chemistry
- Laser, Optics and Spectroscopy
- Chemistry of Natural Products
- Environmental Chemistry
- Toxicology

Grade Requirements:

Successful completion of all required chemistry courses, including cognate courses, with no grade less than "C" is required for graduation as a chemistry or biochemistry major.

ACADEMIC ADVISING

Spelman College will assign an academic advisor to all First Year students through the First Year Experience program. This advisor might not be a faculty member in the Chemistry Department. Since it is strongly recommended that students desiring to major in Chemistry, Biochemistry, or Chemistry/Dual Degree Engineering begin taking General Chemistry in the first year, it is important that each student also have an academic advisor within the Department.

It is important that the student meet with her Departmental Advisor regularly to ensure that she is taking the appropriate courses to keep her on track for graduation. If the student experiences academic difficulties, the Academic Advisor can offer guidance so that the student can make responsible decisions. Advisors should also be consulted if the student is interested in taking summer school courses, studying abroad, seeking summer research opportunities, and when she is eventually applying to graduate/professional school.

The student will stay with her assigned Academic Advisor throughout her first three years at the College. It is strongly suggested that the student meet with her advisor during the early registration process each semester. The advisor will recommend a course schedule that will meet the requirements of the Department and the College. It is, however, the student's responsibility to make certain that she has taken all of the required prerequisite courses before taking a given major or cognate course and that she is taking the appropriate courses each semester as recommended by her Advisor based on the outlined suggested course sequence.

When the student reaches the status of a rising senior, she will then need to meet with the Department Chair, who will begin the senior verification process. The Chair will verify that each graduating senior has fulfilled all department graduation requirements and send this verification to the Registrar's Office. It is essential that the student meet with the Chair beginning in the spring semester of her junior year to begin this process.

In order to assist the chemistry major in planning her four year schedule of courses, the department has developed suggested course sequence schedules for each of the described Chemistry Options. Please review the following course sequence for your selected Option prior to early registration each term. Refer to the Spelman College Bulletin for course prerequisite information.

BIOCHEMISTRY MAJOR

The Biochemistry major is offered through the Department of Chemistry. This sequence is recommended for students planning entry into graduate school in Biochemistry and is also valuable as preparation for entry into medical or dental school or other allied health fields.

FIRST YEAR

Fall Semester	**Credits**	**Spring Semester**	**Credits**
General Chemistry I (CHE111)	3	General Chemistry II (CHE112)	3
General Chemistry I Lab (CHE111L)	1	General Chemistry II Lab (CHE112L)	1
& Recitation (CHE111R)	0	& Recitation (CHE112R)	0
Precalculus (MAT116 or MAT120)	3-4	Calculus I (MAT231)	4
First Year Composition (ENG103)	4	Foreign Language (FL201)	4
African Diaspora/World I (ADW111)	4	African Diaspora/World II (ADW112)	4
First Year Experience (Chemistry)	0.5	First Year Experience (Chemistry)	0.5
TOTAL HOURS	*15.5-16.5*	*TOTAL HOURS*	*16.5*

SOPHOMORE YEAR

Fall Semester	**Credits**	**Spring Semester**	**Credits**
Organic Chemistry I (CHE231)	4	Organic Chemistry II (CHE232)	4
Organic Chemistry I Lab (CHE233L)	1	Organic Chemistry II Lab (CHE234L)	1
& Recitation (CHE233R)	0	& Recitation (CHE234R)	0
Biology of the Cell (BIO120)	4	Organismal Form and Function(BIO115)	4
Calculus II (MAT 232)	4	Physics I: Mechanics & Lab (PHY151)	4
Foreign Language (FL202)	4	Physical Education	1-2
Sophomore Experience	0.5	Sophomore Experience	0.5
TOTAL HOURS	*17.5*	*TOTAL HOURS*	*14.5-15.5*

JUNIOR YEAR

Fall Semester	**Credits**	**Spring Semester**	**Credits**
Biochemistry I (CHE311)	4	Biochemistry II (CHE312)	3
*Biochemistry Lab (CHE313L)	1	Physical Chemistry II (CHE346)	3
Physical Chemistry I (CHE345)	3	Physical Chemistry II Lab (CHE346L)	1
Physics II Elec/Mag & Lab (PHY241)	4	Divisional Requirement 2	4
Divisional Requirement 1	4	Computer Science I - C++ (CIS121)	4
		Physical Education	1-2
TOTAL HOURS	*16*	*TOTAL HOURS*	*16-17*

SENIOR YEAR

Fall Semester	**Credits**	**Spring Semester**	**Credits**
Analytical Chemistry (CHE301)	*3*	*Instrumental Analysis (CHE496)*	*4*
*Analytical Chemistry Lab (CHE301L) **or***	*1*	Chemistry Seminar (CHE429)	1
Advanced Biochemistry (CHE446)	3	Women's or International Studies	4
**Math or ***Biology Elective	4	Elective	4
Undergraduate Research (CHE431)	1-3	Undergraduate Research (CHE432)	1-3
Divisional Requirement 3	4		
TOTAL HOURS	*12-18*	*TOTAL HOURS*	*10-16*

* Biochemistry Lab can be taken either in the Fall or Spring

** Math Electives include: Calculus III, Biostatistics, Linear Algebra or Differential Equations

*** Biology Electives include: Cellular & Molec. Genetics, Microbiology, Physiology or other upper division courses

CHEMISTRY MAJOR - *Option 1*

This option is ACS-approved and recommended for those students seeking entry into graduate school in Chemistry.

FIRST YEAR

Fall Semester	Credits	Spring Semester	Credits
General Chemistry I (CHE111)	3	General Chemistry II (CHE112)	3
General Chemistry I Lab (CHE111L)	1	General Chemistry II Lab (CHE112L)	1
& Recitation (CHE111R)	0	& Recitation (CHE112)	0
Precalculus (MAT116 or MAT120)	3-4	Calculus I (MAT231)	4
First Year Composition (ENG103)	4	Foreign Language (FL201)	4
African Diaspora/World I (ADW111)	4	African Diaspora/World II (ADW112)	4
First Year Experience (Chemistry)	0.5	First Year Experience (Chemistry)	0.5
TOTAL HOURS	*15.5-16.5*	*TOTAL HOURS*	*16.5*

SOPHOMORE YEAR

Fall Semester	Credits	Spring Semester	Credits
Organic Chemistry I (CHE231)	4	Organic Chemistry II (CHE232)	4
Organic Chemistry I Lab (CHE233L)	1	Organic Chemistry II Lab (CHE234L)	1
& Recitation (CHE233R)	0	& Recitation (CHE234R)	0
Physics I: Mechanics & Lab (PHY151)	4	Physics II: Elec/Mag & Lab (PHY241)	4
Calculus II (MAT 232)	4	Computer Science I – C++ (CIS121)	4
Foreign Language (FL202)	4	Physical Education	1-2
Sophomore Experience	0.5	Sophomore Experience	0.5
TOTAL HOURS	*17.5*	*TOTAL HOURS*	*14.5-15.5*

JUNIOR YEAR

Fall Semester	Credits	Spring Semester	Credits
Physical Chemistry I (CHE345)	3	Physical Chemistry II (CHE346)	3
**Analytical Chemistry (CHE301)	3	Physical Chemistry II Lab (CHE346L)	1
**Analytical Chemistry Lab (CHE301L)	1	Instrumental Analysis (CHE496)	4
*Differential Equations (MAT365)	4	Divisional Requirement 1	4
*Physics III: Optics & Lab (PHY 242)	4	Elective	4
Physical Education	1-2		
TOTAL HOURS	*16-17*	*TOTAL HOURS*	*16*

SENIOR YEAR

Fall Semester	Credits	Spring Semester	Credits
Inorganic Chemistry (CHE421)	3	Senior Seminar (CHE429)	1
Inorganic Chemistry Lab (CHE421L)	1	Biochemical Principles (CHE 410)	3
**Undergraduate Research (CHE431)	1-3	**Undergraduate Research (CHE432)	1-3
Women's or International Studies	4	+Adv. Chem. Elective (non-ACS cert.) *or* General Elective (ACS-certified)	3-4
Divisional Requirement 2	4	Divisional Requirement 3	4
Elective	4		
TOTAL HOURS	*17-19*	*TOTAL HOURS*	*12-15*

*Recommended course **Required for ACS-certification only

+ If not desiring ACS-certification, an Advanced Chemistry Elective will be required in place of CHE 301; in addition, general Electives can be taken in place of Undergraduate Research in the senior year.

CHEMISTRY MAJOR - *Option 2*

This sequence is recommended for students planning to enter professional degree programs in medicine, dentistry, allied health fields, or those seeking entry into post-baccalaureate or graduate programs requiring science degrees for admission.

FIRST YEAR

Fall Semester	Credits	Spring Semester	Credits
General Chemistry I (CHE111)	3	General Chemistry II (CHE112)	3
General Chemistry I Lab (CHE111L)	1	General Chemistry II Lab (CHE112L)	1
& Lab Recitation (CHE111R)	0	& Lab Recitation (CHE112)	0
Precalculus (MAT116 or MAT120)	3-4	Calculus I (MAT231)	4
First Year Composition (ENG103)	4	Intro to Computers (CIS100)	4
African Diaspora/World I (ADW111)	4	African Diaspora/World II (ADW112)	4
First Year Experience (Chemistry)	0.5	First Year Experience (Chemistry)	0.5
TOTAL HOURS	*15.5-16.5*	*TOTAL HOURS*	*16.5*

SOPHOMORE YEAR

Fall Semester	Credits	Spring Semester	Credits
Organic Chemistry I (CHE231)	4	Organic Chemistry II (CHE232)	4
Biology of the Cell (BIO120)	4	Organic Chemistry I Lab (CHE233L)	1
Physics I: Mechanics & Lab (PHY151)	4	& Lab I Recitation (CHE233R)	0
Physics I: Recitation (PHY151R)	0	Organismal Form and Function(BIO115)	4
Calculus II (MAT 232)	4	Physics II: Elec/Mag & Lab (PHY241)	4
Sophomore Experience	0.5	Physical Education	1-2
		Sophomore Experience	0.5
TOTAL HOURS	*16.5*	*TOTAL HOURS*	*14.5-15.5*

JUNIOR YEAR

Fall Semester	Credits	Spring Semester	Credits
Organic Chemistry II Lab (CHE234L)	1	*Biochemistry II (CHE312)	3
& Lab II Recitation (CHE234R)	0	Divisional Requirement 1	4
Analytical Chemistry (CHE301)	3	Women's or International Studies	4
Analytical Chemistry Lab (CHE301L)	1	Foreign Language (FL202)	4
*Biochemistry I (CHE311)	4	Physical Education	1-2
*Biochemistry II Lab (CHE313L)	1		
Foreign Language (FL201)	4		
TOTAL HOURS	*14*	*TOTAL HOURS*	*16-17*

SENIOR YEAR

Fall Semester	Credits	Spring Semester	Credits
Physical Chemistry (CHE345)	3	Advanced Chemistry Elective	3
Senior Seminar (CHE429)	1	*Biology Elective	4
Advanced Chemistry Elective w/lab	4	Divisional Requirement 3	4
*Biology Elective	4	Elective	4
Divisional Requirement 2	4		
TOTAL HOURS	*16*	*TOTAL HOURS*	*15*

* Recommended course: the Biochemistry lab can be taken either Fall or Spring; recommended Biology Electives include Cellular & Molecular Biology, Physiology or other upper division Biology courses

CHEMISTRY MAJOR –*Teaching Certification in Secondary Education*

FIRST YEAR

Fall Semester	Credits	Spring Semester	Credits
General Chemistry I (CHE111)	3	General Chemistry II (CHE112)	3
General Chemistry I Lab (CHE111L)	1	General Chemistry II Lab (CHE112L)	1
G.Chem.I Lab Recitation (CHE111R)	0	G.Chem.II Lab Recitation (CHE112R)	0
First Year Seminar in Chemistry	0	Calculus I (MAT231)	4
Precalculus (MAT116 or MAT120)	3-4	Discovering Comp.Sci. (CIS111)	4
First Year Composition (ENG103)	4	African Diaspora/World II (ADW112)	4
African Diaspora/World I (ADW111)	4	First Year Experience	0.5
First Year Experience	0.5	Physical Education	1-2
Physical Education	1-2		
TOTAL HOURS	*16.5-18.5*	*TOTAL HOURS*	*17.5-18.5*

SUMMER: Foreign Language, Math (if not finished with Calculus I)

SOPHOMORE YEAR

Fall Semester	Credits	Spring Semester	Credits
Organic Chemistry I (CHE231)	4	Organic Chemistry II (CHE232)	4
Organic Chemistry I Lab (CHE233L)	1	Organic Chemistry II Lab (CHE234L)	1
& Lab I Recitation (CHE233R)	0	& Lab II Recitation (CHE234R)	0
Calculus II (MAT 232)	4	Physics I: Mechanics & Lab (PHY151)	4
Sophomore Experience	0.5	Sophomore Experience	0.5
Orientation in Education (EDU 206)	4	Divisional Requirement 1	4
Educational Psychology (EDU204)	4	Educational Tech & Media (EDU 229)	4
TOTAL HOURS	*17*	*TOTAL HOURS*	*17*

SUMMER: Foreign Language + Divisional Req.

JUNIOR YEAR

Fall Semester	Credits	Spring Semester	Credits
Physical Chemistry (CHE345)	3	Physical Chemistry II (CHE346)	3
Analytical Chemistry (CHE301)	3	Physical Chemistry Lab (CHE346L)	1
Analytical Chemistry Lab (CHE301L)	1	Divisional Requirement 3/Women's or	
Physics II: Elec/Mag & Lab (PHY241)	4	International Studies	4
Divisional Requirement 2	4	Guidance of Adolescents (EDU 304)	4
Multicultural Education (EDU 308)	4	Teaching Reading (EDU 315)	4
		Exceptional Child (EDU 316)	4
TOTAL HOURS	*19*	*TOTAL HOURS*	*20*

SENIOR YEAR

Fall Semester	Credits	Spring Semester	Credits
Advanced Chemistry Elective	3	Biochemical Principles (CHE410)	4
Advanced Chemistry Elective w/lab	4	Student Teaching (EDU 458)	12
Senior Seminar (CHE429)	1	Seminar II (EDU 452)	0
Advocacy in Urban Sch. (EDU 407)	4		
Curriculum (EDU 444)	4		
Seminar I (EDU 451)	1		
TOTAL HOURS	*17*	*TOTAL HOURS*	*16*

CHEMISTRY AND CHEMICAL ENGINEERING MAJOR

FIRST YEAR

Fall Semester	Credits	Spring Semester	Credits
General Chemistry I (CHE111)	3	General Chemistry II (CHE112)	3
General Chemistry I Lab (CHE111L) & Lab Recitation (CHE111R)	1	General Chemistry II Lab (CHE112L) & Lab Recitation (CHE112R)	1
Calculus I (MAT231)	4	Calculus II (MAT232)	4
First Year Composition (ENG103)	4	Engineering Graphics (ERG102)	3
African Diaspora/World I (ADW111)	4	African Diaspora/World II (ADW112)	4
Introduction to Engineering (ERG101)	2	Foreign Language (FL201)	4
First Year Experience (Chemistry)	0.5	First Year Experience (Chemistry)	0.5
TOTAL HOURS	*18.5*	*TOTAL HOURS*	*19.5*

SOPHOMORE YEAR

Fall Semester	Credits	Spring Semester	Credits
Organic Chemistry I (CHE231)	4	Organic Chemistry II (CHE232)	4
Organic Chemistry I Lab (CHE233L)	1	Organic Chemistry II Lab (CHE234L)	1
& Lab I Recitation (CHE233R)	0	& Lab II Recitation (CHE234R)	0
Physics I: Mechanics & Lab (PHY151)	4	Physics II: Elec/Mag & Lab (PHY241)	4
Computer Science I – C++ (CIS121)	4	Calculus III (MAT324)	4
Foreign Language (FL202)	4	Divisional Requirement 1 (Humanities)	4
*Physical Education	1-2	Physical Education	1-2
Sophomore Experience	0.5	Sophomore Experience	0.5
TOTAL HOURS	*18.5-19.5*	*TOTAL HOURS*	*18.5-19.5*

JUNIOR YEAR

Fall Semester	Credits	Spring Semester	Credits
Physical Chemistry I (CHE345)	3	Physical Chemistry II (CHE346)	3
Inorganic Chemistry (CHE421)	3	Physical Chemistry II Lab (CHE346L)	1
Inorganic Chemistry Lab (CHE421L)	1	Instrumental Analysis (CHE496)	4
*Physics III: Optics & Lab (PHY 242)	4	Linear Algebra (MAT214)	4
Differential Equations (MAT365)	4	*Divisional Requirement 3 -American History or Economics	4
Divisional Requirement 2 (Fine Arts)	4	Women's/International Studies	4
TOTAL HOURS	*19*	*TOTAL HOURS*	*20*

NOTE: Eight (8) of the required ten (10) Chemistry content courses are listed in this sequence; the remaining two required Chemistry courses will be taken at the engineering institution upon approval.

*If attending Georgia Tech, Physics III is not required; additionally, the 2-credit hour fitness course is required as are American History and either Microeconomics or Macroeconomics

PLACEMENT EXAMINATIONS

Entering students with Advanced Placement (AP) Examination scores of 4 or higher may enroll in General Chemistry 112 with departmental approval based on an assessment of previous laboratory experience equivalent to the General Chemistry 111 laboratory. Credit hours granted through advanced placement exams will be posted on the transcript but will not be considered in the cumulative GPA calculation.

ACADEMIC POLICIES AND PROCEDURES

Course Load Policy:

A student who has earned more than thirty-two (32) credit hours and has a 2.8 grade point average may request written approval from her academic advisor and the Dean of Undergraduate Studies to register for an overload. This process must be completed by the add/drop deadline. Students are not allowed to register for more than 21 hours. A student permitted to register for more than eighteen (18) credit hours must pay an additional fee per credit hour, with the exception of those majoring in the Dual Degree Program.

Policy on Excused Absenses:

A student who has missed one week or more of class may request an excuse from the Dean's Office. A student may request an excuse from absence only if she has a valid reason *(personal illness, death in the family, or other emergency).* To be excused, a student must present acceptable documentation to the Dean. Refer to the syllabus for each individual course for policies on making up work/exams.

Policy on Withdrawal from a Course:

A student may withdraw from a course with a grade of ***W*** by the second Friday in November in the fall semester and the last Friday in March in the spring semester. After these deadlines, a student who withdraws from a course will receive a grade of ***F***.

Course Forgiveness Policy for Failed Courses:

A student may repeat a maximum of two Spelman courses for grade forgiveness. While the original grade remains on the transcript and is preceded by the symbol "S," only the second grade is calculated in the student's GPA, even if the repeat grade is lower. A student may not repeat a course for forgiveness if a non-passing grade resulted from an integrity violation. Course forgiveness may only be used with Spelman courses. Under some circumstances, a different course may be used if the substitute course has been approved by the Office of Undergraduate Studies. A student who is considering this option should discuss with her advisor the repercussions of repeating the course. The Course Forgiveness Request form may be found in the Office of Undergraduate Studies and the Office of the Registrar.

Honor Roll and Dean's List:

Students who carry a minimum of 15 semester credits of college-level courses and maintain an average of 3.0 or above with no grade below "C" and no withdrawals shall be Honor Roll students for the semester.

Students who qualify for the Honor Roll in both semesters of a given year will be listed on the Dean's List.

SUMMER SCHOOL AND CREDIT TRANSFERS

Spelman College does not offer summer semester courses. Therefore, students wanting to attend summer school must do so at other institutions. Summer school applications will be made available in the Registrar's Office toward the end of April. Students should meet with their advisors to determine the best courses to take during the summer and discuss where the courses will be taken (preferably at a four-year college on the semester system.) If taking a non-chemistry course, the course description and/or syllabus from the summer institution should be obtained and taken to the chairpersons of the departments at Spelman that offer similar courses. The chairperson will determine whether the course is equivalent to that offered here and will sign off on the application. The approval of the Chemistry Department Chair and the student's advisor also need to be obtained.

A student in the major is *not allowed* to take a Chemistry course during summer school unless she has taken but not passed the given course at Spelman during the regular academic year. The student must first obtain the Chemistry Department Summer School Approval Form. Approval must then be obtained from the faculty member designated to approve a given course and must present the necessary course description, syllabi, and have proof of how often the course meets (courses meeting less than six weeks in the summer may not be approved). The Department Chairperson makes the final approval for a student to register for a summer school course in Chemistry.

Only one lower division core course (100-200 level) and only one upper division core course (300-400 level) may be repeated off campus. (NOTE: This restriction does not apply to Advanced Chemistry Electives that are offered at other AUC schools or those counted toward graduation for Dual Degree Engineering majors at the engineering institution.)

It is the policy of Spelman College to accept no more than **16 credit hours through summer study.**

ACS CERTIFICATION

A certified degree in chemistry is a valuable credential that serves as national-level recognition for successfully completing a rigorous academic chemistry curriculum in an ACS-approved department. A certified degree indicates extra rigor and additional requirements and is valued by potential employers and graduate schools alike. In order to receive ACS certification, as verified by the Department Chair, majors will have to complete the following courses:

- **General Chemistry 111-112 lecture and 111L-112L lab sequences** (*unless placed out of one course in the sequence*)
- **Five Foundation Courses**
  - Organic Chemistry I (CHE 231)
  - Analytical Chemistry (CHE 301)
  - Biochemistry (CHE 311 or CHE 410)
  - Physical Chemistry I (CHE 345)
  - Inorganic Chemistry (CHE 421)
- **Four In-Depth Courses,** as selected from
  - Organic Chemistry (CHE 232) – *required*
  - Biochemistry II (CHE 312)
  - Physical Chemistry II (CHE 346)
  - Lasers, Optics, and Spectroscopy (CHE 356)
  - Toxicology (CHE 411)
  - Advanced Biochemistry (CHE 446)
  - Chemistry of Natural Products (CHE 452)
  - Environmental Chemistry (CHE 453)
  - Instrumental Analysis (CHE 496)
  - Advanced Physical Chemistry (offered within AUC)
  - Advanced Organic Chemistry (offered within AUC)
  - Advanced Inorganic Chemistry (offered within AUC)
- **Laboratory Experience**
  - 400 hours of lab experience beyond General Chemistry lab
  - Lab work must cover at least 4 of the 5 foundation areas
  - Up to 180 lab hours and 4 credit hours of in-depth coursework can be accounted for in research lab courses and must culminate in a comprehensive, well-documented research report, including safety considerations.

DEPARTMENTAL HONORS

Students graduating with Chemistry departmental honors must satisfy the following requirements:

- 3.0 GPA overall
- 3.2 GPA in Chemistry courses (excluding Research and Senior Seminar), with no grade less than a "C"
- Research experience, including dissemination of results in writing (e.g. thesis or publication)
- Departmental service as a lab assistant, teaching assistant, tutor, or peer mentor

Departmental Honors are designated by the student's name in the Commencement Program at graduation.

GRADUATION REQUIREMENTS

The major who has completed the minimum 120 credit hours as well as the required 10 chemistry contents courses (7 with laboratory), seminars, research courses, and cognate courses will be verified for graduation by the Department Chair. The process of senior verification will begin in the second semester of the student's junior year.

If a student has *attempted all courses* required for graduation, but has not passed up to two (2) courses, she will be allowed to march at graduation but will not receive the verification of graduation on her transcripts and her diploma until all course requirements have been satisfied. The student who intends to participate in graduation ceremonies but who will not be fulfilling all degree requirements will need to obtain a Petition to March form from the Dean's Office and have it signed by the Department Chair.

RESEARCH TRAINING OPPORTUNITIES

A number of programs are currently in place that sponsor student research training both on and off campus. A listing and brief description of each program are shown below. It is suggested that the Program Director (P.D.) be contacted for more information regarding the specific requirements of a given program. Information may also be found on the Spelman website. Several faculty members have individual research projects and offer interested students additional research training opportunities.

ASPIRE (Advancing Spelman's Participation in Informatics Research and Education Program)

Students can apply to work in Collaborative Interdisciplinary Informatics Research Teams in specific research areas of informatics involving chemistry, environmental science, biology, mathematics, and/or computer science. Contact: Dr. Leyte Winfield, P.D.

Howard Hughes Research Fellowship Program

Provides support and research opportunities for students both during the summer and academic year. Participants will perform research with research faculty either on or off campus and will attend lectures and symposia. Contact: Dr. Lisa Hibbard, P.D.

MARC (Minority Access to Research Careers) U*STAR Program

Provides support and research opportunities for honors students in the AUC interested in pursuing Ph.D. degrees in the biomedical sciences; selection is made in the junior or senior year. Contact: Dr. Lisa Hibbard, Spelman Liaison or Dr. Isabella Finkelstein (CAU), P.D.

NASA/ExxonMobil Women in Science and Engineering (WISE) Program

Offers support and research training to students interested in science and engineering careers. Students engage in summer internships at NASA or ExxonMobil. Contact: Dr. Cornelia Gillyard, P.D. (NASA WISE) or Dr. Leyte Winfield, P.D. (ExxonMobil WISE)

RISE (Research Initiative for Scientific Enhancement) Program

A structured biomedical research training program for students interested in pursuing biomedical research careers/Ph.D. degrees in a biomedically related discipline. Development training and research training at all student levels. Contact: Dr. Dolores Bradley, P.D.

ACTIVITIES AND ORGANIZATIONS

Majors in the Chemistry Department are active in a number of organizations and in several extracurricular activities both on and off campus. Many of these organizations offer opportunities for students to interact with students, faculty, and colleagues across the campus, region, and nation with interests and career goals similar to their own. Here is a listing of a few activities and organizations on campus in which department majors are active. Refer to the Organizations and Community Service links under Current Students on the Spelman website for more information.

Spelman Student Affiliate Chapter of the American Chemical Society (Chemistry Club)

Elementary Science Education Partners (ESEP) Program

Health Careers Club

National Society of Black Engineers (NSBE)

National Society of Black Chemists and Chemical Engineers (NOBCChE)

Student Health Associates and Peer Educators (SHAPE)

SCIENTIFIC HONOR SOCIETIES

Alpha Epsilon Delta (Pre-Med Honor Society)

Beta Kappa Chi (Scientific Honor Society)

CHEMISTRY FACULTY

NAME	***COURSES TAUGHT***	***RESEARCH AREA***	***OFFICE LOCATION***	***PHONE EXTENSION***
Gladys Bayse	Biochemistry Toxicology	Enzyme studies of human toxicity of benzenearsonates using spectral and chromatographic techniques	346	5739
Nripendra Bose	Biochemistry Organic Chemistry Natural Products	Applications of organic chemistry to microbiology and natural products; green chemistry	379	5740
Beatriz Cardelino	General Chemistry Physical Chemistry	Numerical simulations of chemical vapor deposition reactors; prediction of nonlinear optical properties of organic materials	376	5741
Peter Chen	General Chemistry Analytical Chemistry Instrumental Analysis	Applications of lasers and OPO's in chemical measurement; nonlinear Raman spectroscopy	182	5742
Jean-Marie Dimandja	General Chemistry Analytical Chemistry Instrumental Analysis	Advances in the areas of sample preparation and multidimensional gas chromatography	386	5743
Cornelia Gillyard	Organic Chemistry Environmental Chem.	Synthesis and analysis of organoarsenicals; analysis of environmental pollutants via NMR and FTIR	332	5738
Lisa Hibbard	General Chemistry Physical Chemistry	Photochemistry and characterization of ocular lens proteins using fluorescence and circular dichroism	347	5745
Kimberly Jackson	General Chemistry Biochemistry	Study of therapeutic agents in race-specific hormone refractory prostate cancer	378	5792
Marisela Mancia	General Chemistry	General Chemistry Lab Coordinator	193	5852
Tawfeq Kaimari	Organic Chem. & Lab	Organic synthesis of breast-cancer inhibitor compounds	181	5751
Virgil Payne	General Chemistry Inorganic Chemistry	Department Laboratory Coordinator	329	5749
Shanina Sanders	Organic Chemistry	Organic Chemistry Lab Coordinator	328	5758
Albert Thompson	General Chemistry	Synthesis and characterization of water-soluble porphyrins	388	5750
Leyte Winfield	Organic Chemistry	Study of COX-2 inhibitor structure on cancer cell proliferation; synthesis of inhibitor compounds	372	5748

SUPPORT SERVICES

Spelman College offers a number of academic and personal support services, all of which are described in the Spelman College Bulletin. Several of the more useful resource offices are listed below, along with a point of contact. This list is by no means an exhaustive. Please refer to your academic advisor or the Dean's Office for additional assistance, if needed.

Chemistry Department, Lisa Hibbard *(Chairperson)*
SC 347, x5745
Lorraine Savoy *(Administrative Assistant)*
SC 343, x5744

Career Planning and Development, Harold Bell *(Director)*
AUC Executive Office Bldg, Suite 200, x5269

Counseling Services, Vanessa McAdams-Mahmoud *(Director)*
MacVicar, x5288

Health Careers Office, Barbara Bell *(Director)*
Tapley 127, x5813

Learning Resources Center, Cynthia Hodges-Atkins *(Specialist)*
Giles G4, x5585

Mathematics Lab, SC 301, x5831

MIT Help Desk, Tapley ACC 201, x5400

WebCT Server, Dan Bascelli *(Coordinator)*
Cosby 340, x5594

Writing Center, Bonita Tidwell *(Administrative Assistant)*
Cosby 336, x5593

FREQUENTLY ASKED QUESTIONS

How often should I see my advisor?

You will meet with your advisor for early registration and at least two other times for formal meetings during your first year and for early registration each semester as an upperclassman up until your senior year. If you have any questions about requirements or if you have other academic or personal problems, your advisor is someone you can always go to for advice.

Can I major in Chemistry and minor in Biochemistry or vice versa?

Spelman College does not allow a student to have a major and a minor in the same department.

Are there any scholarships for chemistry majors?

Rising sophomores, juniors, and seniors may apply to the ACS Scholars Program. Scholarships are awarded based on merit and financial need to students committed to pursuing graduate studies or who are intending a career in the chemical industry. Awards are up to $3,000 per academic year for and are renewable. Visit: www.chemistry.org for more information.

Another scholarship that is available is the Development Fund for Black Students in Science and Technology (DFBSST.) Scholarships ($500-$2,000) are offered yearly to two students in the sciences based on academic achievement and financial need. Visit the Department Chair for more information. Research programs also offer stipends to student trainees.

Should I get involved in student activities as a first year student?

It is usually suggested that first year students keep extracurricular activities to a minimum. It is important to develop good time management skills and build a solid GPA foundation the first year. Once you are comfortable with college life and studies, feel free to join in on campus activities.

If I don't do well on my first test in a course, should I drop the class?

The first thing to do is speak to the instructor to discuss learning strategies. The Learning Resources Center can help determine your best way of learning and whether you have test anxiety. The councilors there are also available to assist with improving time management skills. Your course instructor or academic advisor can give you suggestions and assist you in setting up meetings with individuals who can help.

If I don't pass a chemistry course, should I change my major?

Not necessarily. If you really enjoy studying chemistry, by all means, stay in the major. Perhaps you just need to work on study habits or improve your time management skills. There is typically time to "catch up" if you have any setbacks. It is also possible to change from one option to another within the department, if desired. Once again, your advisor can help.

What are the qualifications for serving as a tutor, lab assistant, etc.?

You need to fill out an application form in the Department Office. Faculty members who you have designated as being able to give you a recommendation will be contacted. A decision will be made based on your recommendations and the number of slots available in a given semester. These are paid positions and working in the department is a great way of earning some extra money while being on campus. Don't forget that those students wanting departmental honors must serve the department in one of these positions.

When is it recommended to go to summer school?

If you did not place out of the first year of foreign language or placed into a lower level math class than you anticipated, summer school might be an option. It is best to attend summer school the summer between the first and sophomore years if taking these lower level courses. If you need to repeat a Chemistry course or higher level cognate course, it might be necessary to take a summer school course at a later time. Go to your advisor for guidance in selecting summer school courses. It is usually suggested that students reserve the summers before the junior and senior years for internships or training programs, if possible. Remember that the College only accepts a maximum of 16 credit hours from summer study.

Can I work on a research project during the academic year or summer even if I'm not in a program?

Biochemistry majors and those wishing to obtain ACS-certification are required to perform research. If you are in a research training program, you will be required to work on a project either with a faculty member in the department or off campus. If you wish to sign up for a research course within the department, you will need to meet with those faculty members in the department who are performing research of interest to you and have them sign a Research Form indicating that you have spoken with them. You may then be accepted into an available spot in a laboratory. If research is not required for graduation or for a program, you may still be able to work with a faculty member on a project if there is room in her/his lab. If you are not required to perform research during the academic year and feel that your course load is such that you cannot take the time to perform research, you are encouraged to seek research experiences through internships during the summers. OSETC has information regarding summer internships.

Can I study abroad if I'm a Chemistry major?

Although difficult, it has been done. It is easier if you are studying abroad for a semester instead of a year. It can be difficult to find the equivalent chemistry courses at a university in another country, but the department will work with you to determine what courses can be taken. To find out more information, contact Dr. Marjory Ganz, Director of the Study Abroad Program. In addition, the G-STEM Program (Dr. Galvao in Environmental Sciences is the Director) supports students performing research abroad.

If I sign up for a research course, how many hours a week will I be spending in the lab?

If you sign up for research hours, 1 credit hour translates to 3 actual hours of research. Most training programs require 10 hours of research per week. If you are in the Honors Program, you are required to sign up for 8 total credit hours of research (including senior thesis). If you do not have the necessary hours in your schedule each week that allow for research in the lab, your research advisor can determine whether some hours might be spent on literature searching or in preparation of papers/presentations. This will be left up to the discretion of the research advisor.

Will I have the chance to give a presentation on any research that I have done?

We strongly encourage giving research presentations and offer opportunities to do so. If you are in a research training program, you will most likely have travel funds and can go to a scientific meeting as suggested by your research advisor. If you have no travel funds, there is the chance to present at Spelman College's Annual Research Day held each spring.

Is it possible for me to graduate early?

If you enter the college with advanced placement credits and/or place into higher level language and math classes, it is certainly possible to graduate a semester early. You may still participate in commencement ceremonies with your class in May.

Can I march at graduation if I haven't completed all of my chemistry requirements?

You can have up to two courses that you need to complete for graduation and still be able to march with your class. You will need to fill out a Petition to March form (available from the Dean's Office) and have it signed by the Department Chair.

STUDENT MAJOR AGREEMENT

The contents of this handbook, particularly the course sequence schedules for each major option, outline the expectations and requirements of all students majoring in the Chemistry Department. It is imperative that each student read, understand, and follow the recommendations and requirements outlined in the Handbook.

We ask that you sign and return this form to the Chemistry Department Office at the beginning of each academic year to indicate to us that you have read the contents of the Handbook and agree to abide by the guidelines that have been outlined herein.

It is also strongly recommended that you submit a resume along with this agreement form so that we can maintain updated records of our student majors.

I have read and I understand the contents of the Chemistry Department Handbook. I agree to abide by these guidelines.

Student's Name (Print clearly) _____

Student's Signature _____

Date: _____

Classification: _____ Major Option: _____

Academic Advisor: _____