

Chemistry ACS Certified Chemistry Track, Major

Degree Requirements

General Education Requirements (48 Hours)

Area I – Written Composition (2 Courses, 6 Hours)

- A. 3 hours: EH 101
- B. 3 hours: EH 102

Area II – Humanities & Fine Arts (5 Courses, 15 Hours)

No more than six hours from any one discipline.

- A. 3 hours: CA 110
- B. 3 hours from: EH 215, EH 216, EH 225, EH 226, EH 235, EH 236
- C. 3 hours from: ARH 100, ARH 103, ARH 123, ARS 101, DRA 110, MUL 101
- D. 6 hours from: AFR 101, ARH 100, ARH 103, ARH 123, ARH 203, ARS 101, CLA 110, DRA 110, EH 215, EH 216, EH 225, EH 226, EH 235, EH 236, JHS 101, JOU 252, LG 101, LG 102, LG 111, LG 112, LG 121, LG 122, LG 131, LG 132, LG 141, LG 142, LG 151, LG 152, LG 153, LG 171, LG 172, LG 173, LG 201, LG 202, LG 211, LG 212, LG 213, LG 221, LG 222, LG 231, LG 232, LG 234, LG 241, LG 242, LG 251, LG 252, LG 271, LG 272, LG 273, LGS 101, LGS 102, LGS 106, LGS 107, LGS 110, LGS 111, LGS 171, LGS 172, LGS 201, LGS 202, LGS 206, LGS 207, LGS 210, LGS 211, LGS 271, LGS 272, MUL 101, PHL 110, PHL 120, PHL 121, PHL 131, PHL 220, PHL 231, PHL 240, REL 100, REL 200, REL 201

Area III – Natural Sciences & Mathematics (3 Courses & Labs, 11-14 Hours)

- A. 3-4 hours from: MA 110, MA 112, MA 113, MA 115, MA 120, MA 125, MA 126, MA 227, MA 237, MA 238
- B. 8-10 hours from: AN 121 & AN 121L, BLY 101 & BLY 101L or BLY 121 & BLY 121L, BLY 102 & BLY 102L or BLY 122 & BLY 122L, BMD 110, BMD 111, CH 101 & CH 101L, CH 103 & CH 103L, CH 131 & CH 131L, CH 132 & CH 132L, GEO 101 & GEO 101L, GEO 102 & GEO 102L, GY 111 & GY 111L, GY 112 & GY 112L, MAS 134 & MAS 134L, PH 101 & PH 101L, PH 104 & PH 104L, PH 114 & PH 114L, PH 115 & PH 115L, PH 201 & PH 201L, PH 202 & PH 202L

Area IV – History, Social & Behavioral Sciences (4 Courses, 12 Hours)

No more than six hours from any one discipline.

- A. 3 hours from: HY 101, HY 102, HY 121, HY 122, HY 135, HY 136
- B. 9 hours from: AN 100, AN 101, CA 100, CA 211, CJ 105, ECO 215, ECO 216, GEO 114, GEO 115, GS 101, HY 101, HY 102, HY 121, HY 122, HY 135, HY 136, IS 100, IST 201, NAS 101, PSC 130, PSY 120, PSY 250, SY 109, SY 112

Area V – (3 Courses, 9-10 Hours)

- A. Foreign Language. 6 hours from any one group:

LG 101 & LG 102, LGS 106 & LGS 107, LGS 110 & LGS 111, LG 111 & LG 112 or proficiency test or LG 113, LG 121 & LG 122, LG 131 & LG 132 or proficiency test or LG 134, LG 141 & LG 142, LG 151 & LG 152 or proficiency test or LG 153, LG 171 & LG 172 or LG 173, LGS 171 & LGS 172

Students may fulfill the foreign language requirement by passing a proficiency test offered by the Department of Modern and Classical Languages at the level equivalent to the second semester of the foreign language sequence, or by passing another test (e.g., AP (Advanced Placement) or CLEP (College Level Examination Program) at the equivalent level).

Students who pass a proficiency test at the level equivalent to first semester of the foreign language sequence are required to complete only the second semester and will fulfill the foreign language requirement with 3 credit hours of course work.

- B. Natural Sciences/Math. 3-4 hour lab science or math/stat course from:

AN 121 & AN 121L, BLY 101 & BLY 101L or BLY 121 & BLY 121L, BLY 102 & BLY 102L or BLY 122 & BLY 122L, BMD 110, BMD 111, CH 101 & CH 101L, CH 103 & CH 103L, CH 131 & CH 131L, CH 132 & CH 132L, GEO 101 & GEO 101L, GEO

102 & GEO 102L, GY 111 & GY 111L, GY 112 & GY 112L, MAS 134 & MAS 134L, PH 101 & PH 101L, PH 104 & PH 104L, PH 114 & PH 114L, PH 115 & PH 115L, PH 201 & PH 201L, PH 202 & PH 202L, ST 210, MA 113- 299 (except 201 and 202).

Students must complete a 6 credit hour sequence either in literature (Area II – EH 215 & EH 216, EH 225 & EH 226, or EH 235 & EH 236) or history (Area IV – HY 101 & HY 102 or HY 135 & HY 136 or HY 121 & HY 122).

All undergraduates must complete two designated writing credit (W) courses, at least one of which must be in the student's major or minor.

Major Requirements (46 Hours)

- A. 46 hours: CH 131, CH 131L, CH 150, CH 132, CH 132L, CH 201 & CH 201L, CH 202 & CH 202L, CH 265 & CH 265L, CH 301 & CH 301L, CH 302 & CH 302L, CH 401, CH 440, CH 465 & CH 465L, CH 492
 B. 4 hours from: CH 394 and/or CH 494

Minor Requirements (18-24 Hours)

A minor is required for this degree program

Additional Information

Mathematics: MA 125 and MA 126

Physics: Students are to select one of the following options. *Option 1:* PH 201 and PH 202. *Option 2:* PH 114, PH 115, and MA 227. *Option 3:* PH 114, PH 115, and PH 201. *Option 4:* PH 114, PH 115, and PH 202. Options 3 and 4 require the approval of the Chair of the Department of Physics.

Graduation Plan

Chemistry (BS): Chemistry ACS Certified Track (121 Total Hours)

First Year - Fall Semester

Course ID	Course Description	Hours
CAS 100	First Year Experience-College Success	2
EH 101	English Composition I	3
MA 125	Calculus I	4
CH 131	*General Chemistry I	3
CH 131L	*General Chemistry I Lab	1
Fine Arts	**Area II, C	3
Total Hours		16

First Year - Spring Semester

Course ID	Course Description	Hours
EH 102	English Composition II	3
MA 126	Calculus II	3

CH 132	*General Chemistry II	3
CH 132L	*General Chemistry II Lab	1
CH 150	Introduction to Computer Chemistry	2
History	**Area IV, B	3
Total Hours		16

Second Year - Fall Semester

Course ID	Course Description	Hours
PH 201	Calculus-Based Physics I	3
PH 201 L	Calculus-Based Physics I Lab	1
CH 201	Organic Chemistry I	3
CH 201L	Organic Chemistry I Lab	1
CH 265	Introductory Analysis	3
CH 265L	Introductory Analysis Lab	1
Foreign Language	**Area V, A	3
Total Hours		15

Second Year - Spring Semester

Course ID	Course Description	Hours
CH 202	Organic Chemistry II	3
CH 202L	Organic Chemistry II Lab	1
PH 202	Calculus-Based Physics II	3
PH 202L	Calculus-Based Physics II Lab	1
Foreign Language	**Area V, A	3
Literature	**Area II, D	3
	Minor course	3
Total Hours		17

Third Year - Fall Semester

Course ID	Course Description	Hours
CH 301	Physical Chemistry I	3
CH 301L	Physical Chemistry I Lab	1
CH 394/CH 494	Directed Studies	2
CA 110	Public Speaking	3
History, Social, or Behavioral Science	**Area IV, B	3

Minor course	3
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Total Hours	15
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Third Year - Spring Semester

Course ID	Course Description	Hours
CH 302	Physical Chemistry II	3
CH 302L	Physical Chemistry II Lab	1
CH 394/CH 494	Directed Studies	2
Humanities	**Area II, E	3
History, Social, or Behavioral Science	**Area IV, B	3
	Minor course	3
	Total Hours	15

Fourth Year - Fall Semester

Course ID	Course Description	Hours
CH 465/CH 465L	Instrumental Analysis and Lab	5
CH 440	Biochemistry I	3
Humanities	**Area II, E	3
	Minor course	3
	Total Hours	14

Fourth Year - Spring Semester

Course ID	Course Description	Hours
CH 492	Seminar I	1
CH 401	Intermediate Inorganic Chemistry	3
History, Social, or Behavioral Science	**Area IV, B	3
	Minor course	6
	Total Hours	13

Notes

* While the General Chemistry I and II Lecture and Lab are not strict co-requisites, completion of both is required to enroll in any course for which they are a pre-requisite. It is very strongly suggested that CH 131 and CH131L be taken the same semester, and CH 132 and CH 132L be taken the following semester.

** See Degree Requirements

Department Information

Department of Chemistry website
<https://www.southalabama.edu/colleges/artsandsci/chemistry/>

Undergraduate Studies

The chemistry curriculum is designed for students seeking a liberal education as well as for those students requiring more specialized training and skills. The courses provide the foundation necessary for those planning careers as chemists and biochemists following graduation, for students planning to further their education through advanced degrees in chemistry, biochemistry, related sciences, and for those in other professional fields. Two basic curricula are offered for chemistry majors:

1. The American Chemical Society certified degree program in Chemistry is available for those students seeking technical positions in chemistry, as well as for those planning to attend graduate school, or
2. A Biochemistry Option track is available for students strongly interested in the interface of chemistry and biomedical or biological sciences, especially for students anticipating going to graduate school in medical sciences, biochemistry, biophysics, or other life sciences.

Students pursuing a degree in Chemistry also must have a minor in another discipline. All first-time freshmen must successfully complete CAS 100: First Year Experience as a degree requirement. Students must enroll during their first term at USA, except for summer-entry students who must enroll in the fall semester following entry.

Undergraduate Senior Thesis In Chemistry

The Chemistry Senior Thesis Program is designed to stimulate analytical and critical thinking and as such offers motivated and focused undergraduate students the opportunity to develop research and communication skills in preparation for a graduate or professional career. To apply for admission into the program, a student must:

1. Have Junior Chemistry Major status or above.
2. Have completed CH 131, CH 132, CH 201, CH 202, plus one (1) more lower or upper division chemistry course.
3. Have earned a 3.25 GPA or better in chemistry courses attempted.
4. Have earned a 3.0 GPA or better overall.
5. Obtain a recommendation from a faculty member who will serve as research mentor for senior thesis.

In addition to fulfilling the requirements of the standard chemistry program, senior thesis students must complete:

1. A minimum of six (6) semester hours of Honors Research (CH 499). Upon successful completion of six (6) hours of CH 499 the requirement for four (4) hours of Directed Studies (CH 494) will be waived.
2. A formal research Project Prospectus needs to be submitted and approved by the student's research mentor during the first term of participation in program. The prospectus will be prepared under the supervision of the student's research mentor and should include an introduction to the proposed research project, proposed research methods, and relevant literature citations.
3. Complete a written research thesis.
4. The formation of a thesis committee will be at the discretion of the faculty mentor.
5. Present a formal oral defense of the research work to Chemistry Department faculty and students.
6. Complete a poster presentation at national, regional, or local research forum.

Examples of appropriate venues for the presentation include an ACS National meeting, the USA Annual Research Forum (Spring term) or the UCUR Annual Research Forum (Fall term). Students participating in the Chemistry Senior Thesis Program who have a 3.5 GPA will also be eligible for Departmental Honors status. Chemistry majors who are part of the University Honors College will meet the requirements for the Undergraduate Chemistry Senior thesis as well as those of the University's program.

Graduate Studies

Although the Department of Chemistry has no graduate degree programs, courses are offered at the graduate level for those students who need such work.