

(original)

**Instructions for Degree/Major Revisions:**

- Complete this form when the proposed changes will impact the words, numbers, or symbols as presented in the current catalog copy (often referred to as “changing the footprint of the catalog”). **Changes to Program Admission Requirements and Additional Graduation Requirements** should also be included in this proposal.
- Catalog copy is available at <http://www.fgcu.edu/catalog/>. Scroll down to “Academic Programs” on the left navigation bar. Select Undergraduate Programs. Select the Program. Select “Print Program Details” in the upper right corner. Copy and paste catalog copy into a Word document. Turn on the tracking function (be sure that both additions and deletions appear in the tracking). Update the catalog year and make edits. Save the document as a Word file.
- When the proposed changes are approved by the College Curriculum Team, the College Administrator will send the following to Lucero Carvajal in Academic and Curriculum Support (ACS) no later than **May 31** for review by the University Undergraduate Curriculum Team (UUCT):
  - An electronic MS Word version of the **tracked** catalog via email.
  - A color hard copy of the Degree/Major Revision Proposal with appropriate signatures via campus mail.
  - An electronic MS Word version of a degree curriculum map showing prerequisites and sequencing for all courses via email.
- If changes are for courses only and there is no impact to the catalog copy, this revision form is not necessary. When these “**stand-alone**” courses have been approved by the College Curriculum Team and noted in CMS, the CMS College Administrator should send a list to Lucero Carvajal in ACS. The same May 31 deadline applies.
- All changes to courses are completed via the Curriculum Management System (CMS) <https://midas.fgcu.edu/acadaff/scns/default.asp>
- **Reminder:** The prefix/number for a new course is handled one way in the catalog copy and another in CMS. In the catalog copy, identify a new course with the suggested title, suggested prefix and course level, plus XXX (e.g, ART 4XXX). When final approval for the course prefix/number is received from Statewide Course Numbering System, the catalog copy will be updated. In CMS, a new course is requested by entering the suggested title and suggested prefix/number with no XXX. See instructions in CMS for selecting an appropriate suggested prefix/number.

1. Degree/Major Title:

**Chemistry BS**

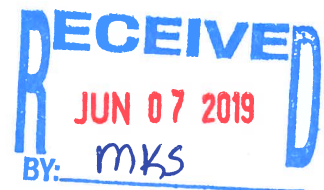
*(note – current proposals for Chemistry BA, Chemistry BS, and Biochemistry BS are entirely identical)*

2. Contact person: Daniel Paull

College: CAS

Department/School: Chemistry & Physics

Telephone: 239-745-4335



3. Briefly describe the proposed revision(s).

- Delete CHM 4931 Senior Capstone in Chemistry.
- Change to CHM 4932 Chemistry Senior Seminar – a small change in the course description (and a senior level restriction for registration).
- Catalog change - CHM 4230C Practical NMR Spectroscopy is changing from an in-major elective course to an in-major required course.

4. Effective date: Fall 2020

Changes are effective in the fall of the year. Exceptions are approved only in unusual circumstances with adequate justification.

5. Briefly explain the rationale for the proposed revision.

Link the proposed revision to assessment and institutional effectiveness activities (feedback from students, market demands, program evaluation, resource allocation, etc.). Provide three years of data.

Rationale for the changes:

We have found CHM 4931 ("Senior Capstone in Chemistry") to be an ineffective design, especially for large classes (over 10 students), and the feedback from the students over the last 3 years suggests that they would be far better served by taking another substantive course in its place. There is a lot of overlap between this course and CHM 4932 ("Senior Seminar"), so we are removing the redundancy. Additionally, CHM 4931 is a drain on the faculty as it requires 4 separate faculty co-teach it with non-commensurate contact hour assignments (not an issue with CHM 4932), removing CHM 4931 from the curriculum relieves a burden on our faculty. The department agrees and is comfortable with the transition, and we see no further use for CHM 4931. This requires 3 changes:

- (a) For future accreditation and continuity purposes, we want to keep the total credit hours of required in-major courses the same, so removing CHM 4931 (currently required in-major) requires moving a 3 credit hour course from elective in-major to required in-major. This will be CHM 4230C, see below.
- (b) We need another course to be our major's capstone. This will be CHM 4932, see below.
- (c) Deleting CHM 4931 because it will no longer be needed.

Rationale for making CHM 4230C ("Practical NMR Spectroscopy") required in-major instead of elective.

One of our best liked and most useful classes, according to student surveys and registration statistics, is CHM 4230C, so we are making it required to satisfy (a) above. This course has proven to be effective in preparing students for success in any of their post-FGCU endeavors, especially for graduate school and laboratory-based jobs.

Technically this gives us one fewer elective, but we are hiring 3 new faculty this year and will add new electives in the next cycle. Also, there will be no gap for students as having new faculty will allow us to offer more of the electives that are already offered intermittently.

Rationale for proposed changes to CHM 4932 ("Senior Seminar")

The only change is to the description of the course to indicate it is now our capstone experience for chemistry and biochemistry majors. (We will also place a senior-level registration requirement on this course.)

6. Describe additional library resources needed to support this revision? Explain rationale for response, even if answer is None.

None. This proposal removes the need for resources.

7. Describe additional faculty resources needed to support this revision? Explain rationale for response, even if answer is None.

None. The proposal removes burden on the faculty.

8. Describe additional technology, facility, laboratory, or other resources needed to support this revision? Explain rationale for response, even if answer is None.

None. This proposal removes the need for resources.

9. What impact will the proposed revision have on other colleges, units, or programs?

Please search current online catalog to determine if other colleges, units, or programs use courses that are part of this proposal and need to be notified of any changes.

None for programs outside of Chemistry. In Chemistry, identical changes are proposed in our Chemistry BA, Chemistry BS, and Biochemistry BS programs (identical impacts) (documents are identical too).

10. New courses:

No new courses are required.

11. Change to existing courses:

Existing courses are being changed. List prefix/number/title below. Complete a Course Change Form for each from the Curriculum Management System - <https://midas.fgcu.edu/acadaff/scns/>.

- CHM 4932 "Chemistry Senior Seminar"

12. Termination of existing courses:

Courses are being terminated. List prefix/number/title below. Complete a Course Terminate Form for each course from the Curriculum Management System - <https://midas.fgcu.edu/acadaff/scns/>.

- CHM 4931 "Senior Capstone in Chemistry"

13. What impact will the proposed revision have on the progression or sequencing of courses in this degree program?

Please provide evidence in the form of a degree curriculum map, a listing of all General Education, required and restricted elective courses in the major and their prerequisites or use another form appropriate for your program.

- NONE. In the curriculum map, CHM 4230C is a *direct* replacement for the deleted course. No other changes were required.

14. What impact will the proposed revision have on the progression or sequencing of courses in this degree program for current students?

Current students in this program will be migrated to the new course catalog. In no respects will this affect their progression or sequencing. If students had *planned* to take CHM 4931 in spring 2021, they will take CHM 4230C instead. This means that CHM 4230C will need to be carefully scheduled to avoid any conflict (as we previously did with CHM 4931, so it will be *no less available*).

If a student has already taken CHM 4230C as an elective, then this credit would change from *elective in-major* to *required in-major*. This can only make it easier to complete the graduation requirements.

We do not foresee any students who will have already taken CHM 4931 when the changes take effect because only students who are ready to graduate take that course.

15. Catalog copy:

See Instructions above.

16. Additional remarks:

Our faculty unanimously agree that this is a beneficial change to our program in all respects.

**APPROVALS** (required prior to submission)

|                                    |                         |      |                                |
|------------------------------------|-------------------------|------|--------------------------------|
| Department/Program Chair/Director  | <u>Stephan Coltrane</u> | Date | <u>Feb 1<sup>st</sup> 2019</u> |
| College Curriculum Committee Chair | <u>Joseph V. Bon</u>    | Date | <u>5-23-19</u>                 |
| College Dean                       | <u>Cheryl</u>           | Date | <u>5/23/2019</u>               |

Does another department or unit provide related expertise or offer similar courses?  No  Yes (If yes, have the other department complete the following. Attach a separate sheet if needed.)

Department/Unit: \_\_\_\_\_

Supports this proposal  Does not support this proposal  Defers Recommendation

Authorizing signature: \_\_\_\_\_ Date \_\_\_\_\_

Comments: \_\_\_\_\_



## **Chemistry (B.S.)**

**College of Arts and Sciences**

**Department of Chemistry and Physics**

<https://www.fgc.edu/CAS/ChemistryBS/index.asp>

(239) 590-7196

**201920-202021 Catalog Year**

The B.S. in Chemistry is a rigorous program that provides students with the opportunity to study matter, the physical material of the universe, and apply knowledge acquired in high-level chemistry courses, laboratory experiences to enhance the quality of life. The program requires undergraduate research, hands-on activities, and the development of students' scientific writing skills. Graduates will be prepared for professional study in medical, dental, veterinary, or pharmacy schools; graduate studies in chemistry at the master's or doctoral level; and employment as chemists or physical scientists in industrial, academic or governmental industries.

### **Program Progression and Additional Graduation Requirements**

For timely degree completion, students must complete all program milestones. The following actions occur when milestone are missed: first occurrence—warning and advising hold; second occurrence—advising hold and counseling regarding progression requirements; and third occurrence—counseling and change to a major outside of the Department of Chemistry and Physics or Department of Biology that is more appropriate to student goals and academic performance. Appeals are handled through the relevant department. The decision of the appeal committee is final.

Program milestones include the following:

- CHM 1045/L (or CHM 1045C) minimum grade of C completed one calendar year from admission as FTIC or 30 credits earned, whichever is earlier.
- CHM 1046/L (or CHM 1046C) minimum grade of C completed by end of fifth semester (including summers) from admission as FTIC or 60 credits earned, whichever is earlier.
- CHM 2210/L (or CHM 2210C) minimum grade of C completed by end of seventh semester (including summers) from admission as FTIC or 75 credits earned, whichever is earlier.

- PHY 2048C minimum grade of C completed by end of seventh semester (including summers) from admission as FTIC or 75 credits earned, whichever is earlier.
- CHM 2211/L (or CHM 2211C) minimum grade of C completed by end of eighth semester (including summers) from admission as FTIC or 90 credits earned, whichever is earlier.
- CHM 3120/L(or CHM 3120C) minimum grade of C completed by end of eighth semester (including summers) from admission as FTIC or 90 credits earned, whichever is earlier.

Transfer students may declare the major after they have completed CHM 1045/L, CHM 1046/L, CHM 2210/L and PHY 2048C with grades of C or better in each course. CHM 2211/L and CHM 3120/L must be completed with a grade of C or better within three semesters (including summer) of declaring the major.

- In addition to the program requirements, students must:
- Complete a minimum of 120 credits.
- Complete a minimum of 48 of the 120 credits at the upper division (3000 - 4999) level.
- Earn a cumulative GPA of 2.0 for all coursework attempted at FGCU.
- Satisfy the College-Level Skills and foreign language entrance requirements.
- Satisfy the Service Learning requirement. (See [www.fgcu.edu/connect](http://www.fgcu.edu/connect)).
- Satisfy the residency requirement: thirty of the last sixty credits must be completed at FGCU.
- Complete the summer course enrollment requirement.
- Submit an Application for Graduation by the deadline listed in the FGCU Academic Calendar.

## Program Requirements

### 1. FGCU General Education

**Program** ([https://www.fgcu.edu/general\\_education/](https://www.fgcu.edu/general_education/))

To prevent or minimize excess hours, select general education courses that satisfy common prerequisite requirements for your intended major.

### 2. Common Prerequisites

A minimum grade of C is required in each course.

FGCU Course: CHM 1045C General Chemistry I w/lab (4) or CHM 1045 (3) and CHM 1045L (1)

Acceptable Substitute: (CHMX045 and CHMX045L) or (CHMX040 and CHMX041) or CHMX045C

FGCU Course: CHM 1046C General Chemistry II w/lab (4) or CHM 1046 (3) and CHM 1046L (1)

Acceptable Substitute: (CHMX046 and CHMX046L) or CHMX046C

FGCU Course: CHM 2210C Organic Chemistry I (4) or CHM 2210 (3) and CHM 2210L (1)

Acceptable Substitute: CHMX210C or (CHMX210 and CHMX210L)

FGCU Course: CHM 2211C Organic Chemistry II (4) or CHM 2211 (3) and CHM 2211L (1)

Acceptable Substitute: CHMX211C or (CHMX211 and CHMX211L)

FGCU Course: MAC 2311 Calculus I (4)

Acceptable Substitute: MACX311 or MACX281

FGCU Course: MAC 2312 Calculus II (4)

Acceptable Substitute: MACX312 or MACX282

FGCU Course: PHY 2048C General Physics I w/lab (4)

Acceptable Substitute: (PHYX048 and PHYX048L) or PHYX048C

FGCU Course: PHY 2049C General Physics II w/lab (4)

Acceptable Substitute: (PHYX049 and PHYX049L) or PHYX049C

**1. Required Courses in the Major (37 credits)**

A minimum grade of C is required in each course.

BCH 3023C Biochemistry (3)

CHM 3120 Analytical Chemistry (3)

CHM 3120L Analytical Chemistry Laboratory (1)

CHM 3410 Physical Chemistry I (3)

CHM 3410L Physical Chemistry I Lab (1)

CHM 3411 Physical Chemistry II (3)

CHM 3411L Physical Chemistry II Lab (1)

CHM 3610 Inorganic Chemistry (3)

CHM 3610L Inorganic Chemistry Laboratory (1)

CHM 4130 Instrumental Analysis (3)

CHM 4130L Instrumental Analysis Laboratory (1)

CHM 4230C Practical NMR Spectroscopy (3)

CHM 4910C Senior Project in Chemistry (2)

CHM 4912C Senior Thesis/Pres. Chemistry (2)

~~CHM 4931 Senior Capstone in Chemistry (3)~~

CHM 4932 Chemistry Senior Seminar (3)

MAC 2313 Calculus III (4)

**4. Restricted Electives in the Major (minimum of 12 credits)**

A minimum grade of C is required in each course.

BCH 3025C Analytical Biochemistry (3)

CHM 3940 Internship in Chemistry (0-4)\*

CHM 4080C Adv. Environmental Chemistry (3)

CHM 4174C Lasers in Physical Sciences (3)

CHM 4220C Advanced Organic Chemistry (3)

~~CHM 4230C Practical NMR Spectroscopy (3)~~

CHM 4300 Bio-Organic Chemistry (3)

CHM 4431 Statistical Thermodynamics (3)

CHM 4512 Computational Modeling (3)

CHM 4671 Bioinorganic Chemistry (3)

CHM 4714C Materials Chemistry (3)

CHM 4930 Special Topics in Chemistry (2-4)

CHS 4533C Forensic Biochemistry (3)

CHS 4544C Forensic Chemistry (3)

ISC 3120C Scientific Process (3)

\*A maximum number of 4 credits combined from this course can be used to fulfill the elective requirement.

**5. University Requirements (3 credits)**

IDS 3920 University Colloquium (3)

**6. Additional Electives – as needed to reach total credits required for the degree**

**TOTAL CREDITS REQUIRED: 120**