

The College of New Jersey

Chemistry Department

Preregistration Newsletter
for Fall 2020 Registration

Hello Chemistry Majors!

The enrollment window for Fall 2020 begins April 7th. Here is some information that will be useful for planning your schedule:

- [Preparing for your Advising Meeting](#)
- [Important Notes and Changes](#)
- [Specializations in the Chemistry Department](#)
- [Advanced Options Courses](#)
- [Looking Ahead to Options Courses for Spring 2021?](#)
- [Chemistry Department Registration Planning Form](#)

Upcoming Dates to Remember

Spring Break	March 16-20, 2020
Advising Window	March 23-April 10, 2020
Enrollment Period	April 7-17, 2020
Commencement	May 21-22, 2020

Preparing for Your Advising Meeting

You must meet remotely with your advisor BEFORE you can register. Hold flags are already placed on your accounts and they will be removed after your virtual meeting with your advisor.

Please remember to:

- Make an advising appointment via [Google calendar](#) with your advisor. Your advisor will send you an invitation. **Advising will occur remotely.** Your advisor will be in contact with information about their advising appointments and means of virtual communication for the advising appointments.
- Check out the course offerings and requirements on PAWS. Use the Academic Requirements feature in PAWS to see the courses you need and to plan your course schedule. Fill your shopping cart with the courses you need, including alternate selections in the event of closed sections. **Create at least one backup plan.**
- Use the Validate feature on PAWS to make sure you have the correct prerequisite courses.
- Review the goals of academic advising in the [Academic Advising Agreement for Undergraduate Students](#) **1st Year and Transfer Students!** If you didn't do this previously, make sure to download, read, sign, and bring this Advising Agreement to your academic advisor.
- Send copies of your *Chemistry Department Registration Planning* form (see page 9), your proposed course schedule(s) for Fall 2020, and an unofficial transcript ready to your advisor for prior to your virtual meeting via Zoom, Google hangout, or whatever communication forum your advisor is using.

If you are unable to enroll in a Chemistry course because it has already reached capacity, please visit the course waitlist at <https://chemistry.tcnj.edu/waitlists/>.

The College [WAITLISTING PROCESS](#)

Important Notes and Changes

Course Scheduling

The following changes may impact which courses you can or should schedule:

- **CHE 493 Independent Research**
Ask your advisor for details or if you have any questions about procedures for CHE 493 enrollment. You need to complete your registration for CHE 493 by Friday, April 24th. Students who have recently submitted research applications should expect to hear back prior to that deadline.
- **Attention First-year and Sophomore CHMT majors!**
New Secondary Education requirements for minimum GPA are in effect and may impact your course/career decisions. Ask your advisor for more information.
- **Looking ahead to Spring 2021, the Advanced Options Chemistry courses are proposed to be CHE 370 Special Topics in Chemistry: Environmental Chemistry and CHE 410: Instrumental Analysis. These courses are tentative. See more information on page 8.**
- **Remember to sign up for Seminar!**
Sophomore and Junior Seminar courses (CHE316 and CHE 317) are held on Wednesday mornings at 10 AM.
- New for Fall 2020 - Biochemistry Specialization (See the description on page 6)
- The Chemistry of Condensed Matter Specialization is now the Material Science Specialization. The curriculum is unchanged. (See the description on page 5)
- CHE 452 will no longer be alternated with CHE 451. However, CHE 451, Inorganic Structures and Bonding will be offered every fall. In the future, CHE 452 will be offered on a rotating basis like other advanced options courses, as a special topics course in inorganic chemistry.
- CHE 451 is listed in PAWS as a single section this fall 2020. However, please join the [waitlist](#) if you want to enroll in CHE 451 and the course is full. Both juniors and seniors are encouraged to register.
- Please note that *undergraduate* students who do not register for at least one class for Fall 2020 by 11:59 p.m. on Sunday, April 19, 2020 will be subject to a \$150 late registration fine administered by the College.
- Summer 2020 and Winter 2021 registration will be available during the April 7-17 window. Winter 2021 registration will continue through the first day of Winter 2021 classes.

Contemplating What Liberal Learning Courses to Take?

Some questions to guide you to the most beneficial Liberal Learning courses.

- Does a course provide you with skills and knowledge that support your major, career, or graduate/professional school?
- Could a course help you explore other potential majors or minors?
- Do you have interests outside your major that you would like to pursue but not necessarily major in?
- Would a course broaden your horizons or provide you with a new perspective?
- What courses might enhance a study-abroad experience or an internship?
- Which courses have topics you find interesting?

Liberal learning course listings can be found by searching courses in PAWS and setting the “Course Attribute” to Liberal Learning Domains, then setting the “Course Attribute Value” to one of the subdomains. A full list of Liberal Learning courses can be found [here](#).

The image shows a search filter interface with four dropdown menus. The first three are empty: "Campus", "Location", and "Course Attribute". The "Course Attribute" dropdown is set to "Liberal Learning Domains". The "Course Attribute Value" dropdown is open, showing a list of subdomains: "Behavioral, Social or Cultural", "Literary, Visual & Perform Arts", "Natural Science", "Natural Science with Lab", and "Quantitative Reasoning". A checkmark is next to the first option. A "CLEAR" button is visible to the right of the dropdowns.

Specializations in the Chemistry Department

Materials Science Specialization

The Materials Science Specialization is an interdisciplinary program open to chemistry and physics majors in the School of Science who have a strong interest in creating new organic, biological, or inorganic materials and/or exploring the properties and applications of these materials. Students should have a background in chemistry and physics and be comfortable with mathematics. Chemistry students are free to pursue research projects in either the Chemistry Department or Physics Department. Chemistry majors who successfully complete this program will graduate with a Bachelor of Science in Chemistry and a specialization in the Chemistry and Physics of Materials Science. Students will be prepared to pursue a wide variety of careers_or graduate study in chemistry, biophysics, or materials science.

To complete the Materials Science specialization, students must complete the following coursework:

- 1) PHY 306/Mathematical Physics or MAT 229/Multivariable Calculus;
- 2) PHY 311 – Analog and Digital Electronics or PHY 451 Advanced Lab or CHE 410/Instrumental Analysis; and
- 3) at least three of the following options courses: PHY 345/Physics of Clouds and Climate, PHY 436/Condensed Matter, CHE 451/Inorganic Chemistry structures and bonding, CHE 478/Special Topics in Condensed Matter (may be taken more than once), and PHY 478/ Photonics, Optics, and Materials. See course listings for additional details. Students must complete at least one options course with a PHY prefix and at least one with a CHE prefix.

Students may apply for the specialization at any time but are encouraged to do so in their sophomore year to facilitate planning and timely completion. To enroll in the program, students should use the [Change of Major Form](#).

NEW: Biochemistry Specialization

This specialization is meant for students who are interested in molecular biology, biochemistry, biophysics, bioanalytical, bioorganic, and/or bioinorganic chemistry. Students pursuing this specialization see the interconnectedness of these disciplines, will gain insight into the interdisciplinary nature of chemistry, biology and physics and wish to pursue interdisciplinary postgraduate goals (i.e. in industry, medical, or graduate programs). Students will graduate with a B.S. in Chemistry with a specialization in Biochemistry. The BS may be American Chemical Society (ACS) certified or non-ACS and can be with or without a research intensive focus. To complete the Biochemistry Specialization, students must take the standard chemistry core courses, with the option to take *either* CHE 371 (Quantum Chemistry) *or* CHE 372 (Chemical Thermodynamics, strongly recommended). In addition, required Correlate Courses include the standard Math and Physics courses for a B.S. in Chemistry, as well as BIO 201 (Foundations in Biological Inquiry) and BIO 211 (Eukaryotic Cell).

Students are also required to take *either*:

- 1) two CHE 474 Advanced Topics in Biochemistry courses (including those that may be cross-listed from other CHE 47X) *or*
- 2) one CHE 474 (or cross-listed CHE 47X) and BIO 471 (Genomics and Bioinformatics) *or*
- 3) one CHE 474 (or cross-listed CHE 47X) and one BIO 470 Special Topics class from an approved list.

Depending on their degree track, Chemistry majors pursuing the Biochemistry Specialization would have the following options course requirements:

ACS w/Research: One options course at the 300 or 400 level and two units of CHE 493 Independent Research or three full units of CHE 493 Independent Research. **ACS:** One options course with a lab at the 300 or 400 level. **Non-ACS:** No options courses are required.

Students may apply for the specialization at any time but are encouraged to do so earlier, such as in their sophomore year, to aid in planning for timely completion. To enroll in the program, students should formally apply for "Biochemistry" as their specialization using the [Change of Major Form](#).

Advanced Options for Fall 2020

CHE 476 Heterocyclic Chemistry

Instructor: Dr. David Hunt

Prerequisites: CHE 332

Texts: John A. Joule and Keith Mills, *Heterocyclic Chemistry*, 5th edition (2013), Wiley

Lecture: M/Th 8:00-9:20

Lab: M 9:30-12:20

The course is for upper level undergraduate chemistry majors and provides an introduction to the broad field of heterocyclic organic chemistry by reviewing the major classes of heterocyclic compounds in terms of nomenclature, structure, properties, preparations, mechanisms, and reactions. The syntheses of several physiologically important heterocyclic compounds is discussed. The lab will entail the preparation of a varied number of heterocyclic compounds. The number of derivatives to be prepared by a lab team will be directly related to the synthetic complexity of the targets selected.

CHE 478 Methods in Biophysical Chemistry

Instructor: Dr. Michelle Bunagan

Prerequisites: CHE 371

Texts: Zaccai, N., Serdyuk, I., & Zaccai, J. (2017). *Methods in Molecular Biophysics: Structure, Dynamics, Function for Biology and Medicine*. Cambridge: Cambridge University Press.

doi:10.1017/9781107297227

and a Lab Notebook

Lecture: T/F 11:00-12:20

Lab: T 2:00-4:50 pm

Biophysical Chemistry is a highly interdisciplinary field between Biochemistry, Physical Chemistry, Biophysics and Physics and examines biological processes in vitro and in vivo. This course, Methods in Biophysical Chemistry, will explore a variety of methods used to understand these biological processes. Lecture will begin by providing an introduction to the relevant biomolecules, and then we will systematically explore spectroscopic techniques that can provide information about these molecules. Topics will include Fluorescence Spectroscopy (Fluorescence Depolarization, Fluorescence Correlation Spectroscopy, Forster Resonance Energy Transfer), Absorption Spectroscopy (UV-Vis, Circular Dichroism, IR, 2D-IR), Microscopy, and Single-Molecule Manipulation. Emphasis will be given to a discussion of the primary literature and student presentations of journal articles. The course will also include a laboratory component, which will make use of a subset of the discussed techniques as applied to various protein systems of interest.

Looking Ahead to Options Courses for Spring 2021?

Tentative Advanced Options will be:

- CHE 410, Instrumental Analysis, Dr. Hunter - *Analytical chemistry is the science of chemical measurements. This Instrumental Analysis course will serve as an introduction to how chemists can leverage the interaction of light and other forms of energy with matter, and control current and potential to probe chemical and biological systems. Students will gain an understanding of the chemical principles behind a variety of instrumental techniques, as well as a working knowledge of instrument operation.*
- CHE 370, Environmental Chemistry, Dr. Aucott

Please sign up [here](#) if you plan to take either CHE 410 and/or CHE 370 in Spring, 2021. These sign up sheets will help us determine if these courses will run.

Chemistry Department Registration Planning

Date:

Name:

Advisor:

List the courses you plan to take for each semester, paying special attention to the chemistry and correlate courses.

Usual Fall Offerings	Usual Spring Offerings
General CHE201/HON201 Organic CHE331, CHE332 Analytical CHE310 Thermodynamics CHE372 Inorganic CHE451 Advanced Option CHE47X First year seminar CHE099 Sophomore Seminar CHE316 Junior Seminar CHE317 Research CHE493 (requires application)	General CHE202/HON202 Organic CHE332, CHE331 Analytical CHE310 Quantum Chemistry CHE371 Biochemistry CHE430 Instrumental Analysis CHE410 Advanced Option CHE370 Advanced Option CHE47X Research CHE493 (requires application) Sophomore Seminar CHE316 Junior Seminar CHE317

FALL		SPRING	
First Year			
Sophomore Year			
Junior Year			
Senior Year			