

**BIOCHEMISTRY**  
**UNDERGRADUATE**  
**CURRICULUM**  
**HANDBOOK**

**For Students entering Fall 2019 or later\***

**Department of Biochemistry**  
**University of Illinois at Urbana**

\* - for students entered before Fall 2019 see department academic advisor

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**TABLE OF CONTENTS**

	<b>PAGE</b>
<b>INTRODUCTION</b>	<b>3</b>
<b>CHANGING MAJORS</b>	<b>4</b>
<b>PROFICIENCY &amp; PLACEMENT</b>	<b>5</b>
<b>COURSE REQUIREMENTS</b>	<b>5</b>
<b>RESEARCH OPPORTUNITIES</b>	<b>9</b>
<b>DISTINCTION</b>	<b>10</b>
<b>DEGREE OPTIONS</b>	<b>10</b>
<b>MINORS</b>	<b>11</b>
<b>TRANSFER STUDENTS</b>	<b>11</b>
<b>ADVISING</b>	<b>12</b>
<b>STUDY ABROAD</b>	<b>14</b>
<b>POST-GRADUATION</b>	<b>14</b>
<b>APPENDIX: LINKS</b>	<b>16</b>
<b>Biochemistry Curriculum Sheet</b>	
<b>Sample 4-year schedule</b>	
<b>List of Approved Courses</b>	
<b>Finding Student Internships</b>	

## **THE BIOCHEMISTRY SPECIALIZED CURRICULUM (for students entering Fall 2019 or later)**

### **INTRODUCTION**

The focus of the Biochemistry specialized curriculum is to provide training that is targeted towards students with definite research-oriented goals, including joint MD/PhD programs. The Biochemistry major provides instruction in physic-chemical principles and in current developments in biochemistry, introduces undergraduates to the research literature, with strong recommendation for a substantial research effort. Students who desire a general understanding of the role of biochemistry in biology and medicine are encouraged to explore our degree in biochemistry.

The purpose of this handbook is to introduce you to the Department of Biochemistry at the University of Illinois in Urbana-Champaign, to outline the requirements for the Baccalaureate degree in Biochemistry, and to tell you about career options in biochemistry. Biochemistry is an advanced, interdisciplinary field that encompasses the biological sciences, physics, and chemistry. The Biochemistry curriculum is more technical in nature, and targets students with well-defined career goals in biochemistry laboratory research, as well as those with joint MD/PhD aspirations.

Biochemistry deals with the chemical composition of living matter and the molecular nature of the processes of living systems. While cell and molecular biology, generally, has been greatly influenced by the rapid advances made in structural biology, biochemistry represents the core field that utilizes structural information for fully mechanistic, chemical interpretation. Its position at the interface between biology and chemistry places a substantial burden of fundamental knowledge on students with the desire to innovate in this field. The Biochemistry curriculum aims to provide a higher level of understanding of core chemical and physical principles, and to place these in a modern research context. The biochemist needs to learn the chemical structure of biological molecules and to define the chemical principles of biological functions. Questions that a biochemist might seek to answer include: What is the composition of cells? What chemical reactions go on inside cells and what are their functions? What is the chemical mechanism of inheritance, of growth, of cell division, of differentiation? How are the energy and material of food stuff converted to the material of new cells and energy of movement, heat, etc.? What chemical and physical properties of naturally occurring molecules enable them to carry out such highly specific functions? Biochemistry also encompasses the practical application of this fundamental knowledge about biological processes. Hence, biochemists are involved in the areas of medicine, pharmacology, agriculture, nutrition, microbiology, food technology, pollution control, and biotechnology.

Presently, a substantial portion of biochemists are employed as teachers and researchers in colleges and universities. Such positions usually require a doctoral degree and, frequently, post-doctoral research experience. Since biochemistry pervades nearly all areas of study in biology, biochemical education offers entry into diverse academic biological disciplines. Many doctorate-level research biochemists are found in governmental research institutions, medical institutions, and many industrial research organizations. Industrial research is focused in the biotechnology,

pharmaceutical, food processing, and fine chemicals areas. Many opportunities exist for biochemists with B.S. or M.S. degrees in all these organizations. Executive, sales and technical personnel and other managerial workers in all the previously mentioned fields also often have their college training in biochemistry or chemistry.

Research is a central focus of Biochemistry. For a complete list of Biochemistry faculty and a description of their research please go to:

<http://mcb.illinois.edu/departments/biochemistry/facultyalpha.html>.

Jeff Goldberg, Senior Coordinator of Student Academic Affairs (Room 417 Roger Adams Laboratory; 217/244-3149 [biocug@mcb.uiuc.edu](mailto:biocug@mcb.uiuc.edu)), is available to answer questions of an academic or administrative nature. If you have questions of a scientific or professional nature, Mr. Goldberg will refer you to a faculty advisor. In order to better serve our students, email your questions to the advisor or schedule an appointment. Contact Jeff Goldberg direct to make an appointment.

## PROCEDURES FOR CHANGING MAJORS

The LAS College permits current UIUC students to change their majors during designated transfer periods. These can be found at: <http://www.las.uiuc.edu/students/programs/declaring/>.

**Transferring into Biochemistry:** An advising appointment and prior departmental approval is required before students can formally transfer into the Biochemistry major. Interested students should email [biocug@mcb.uiuc.edu](mailto:biocug@mcb.uiuc.edu) or call 217/244-3149 to schedule an appointment. Only students who are already on track to meet the requirements, and who meet the following conditions may be permitted to transfer into the Biochemistry curriculum:

**All students** must have completed at least one semester on campus with UIUC GPA average of 3.2 or higher and 3.2 GPA in all UIUC science and math courses (major GPA) and generally follow the 4-year plan to graduate on time (w/ 5<sup>th</sup> year option). Also, written approval by Coordinator of Student Academic Affairs is required.

**Freshmen** must have completed MCB 150, CALC I, CHEM 102/103, enrolled in Rhet 105, CHEM 104/105. (CHEM 200 series is an option)

**Sophomores** must have completed Rhet 105, MCB 150, CALC I & II, general chemistry, CHEM 232/233 (or CHEM 236,237) and MCB 250/251 (Fall), Chem 332 (or CHEM 436), MCB 252/253, CALC III, Phys 101 or 211 (Spring).

**Juniors** must have completed all lower level courses leading to MCB 354 and Phys 101 for Fall, BIOC 406, 455 and Phys 102 for spring

*Note: Freshmen are defined as students who are admitted and enrolled for the first time as Freshmen at any collegiate institution (2-year or 4-year).*

**Transferring out of Biochemistry:** Meeting with the biochemistry advisor is not required before transferring out. Students must first visit an advisor in the major they are interested in.

## INCOMING FRESHMAN

### GENERAL CHEMISTRY PROFICIENCY AND PLACEMENT

Students can earn AP credit for CHEM 102 and 104. No AP credit hours will be earned for lab hours. The online Chemistry Placement Exam does not award proficiency credit.

*All students must take placement exams in both chemistry and mathematics even if they have received AP credit.* The results of these exams (regardless of AP credit) are used to place the student in the appropriate course. The results of the general chemistry placement exam can place you in either CHEM 101 (Introductory Chemistry), CHEM 102, (Chemistry) or CHEM 202 (Accelerated Chemistry). Scoring levels for placement are located at: <https://citl.illinois.edu/citl-101/measurement-evaluation/placement-proficiency>. . NOTE: It is highly recommended to enroll in CHEM 102/104 regardless if you have AP credit. The class room experience will be of great benefit for the ensuing CHEM courses (ORGO I & II).

### BIOLOGY PLACEMENT

Biochemistry Freshmen who enter UIUC without advanced placement credit for biology must enroll in MCB 150 (Molecular and Cellular Basis of Life) during their first year on campus (even if they have AP credit). The lab, MCB 151, is not required. NOTE: It is highly recommended to enroll in MCB 150 regardless if you have AP credit. The class room experience will be of great benefit for the ensuing MCB courses (250, 251, 252, 253, 354).

### COURSE REQUIREMENTS FOR THE DEGREE

Students planning to major in biochemistry take an initial course program similar to the Chemistry curriculum or MCB major. Such beginning training assures adequate prerequisites to meet the advanced course work requirements of biochemistry.

Table I (page 16) lists the sequence of courses that lead to the degree in Biochemistry. **A 2.00 ("C") overall grade-point average as well as a 2.5 GPA in science and math courses is required for graduation in Biochemistry.** Careful planning along with the use of the Curriculum worksheet in the Appendix section is essential to successful negotiation of the sequential interrelated requirements for the Biochemistry degree. Students are strongly encouraged to use the worksheet, degree audit and regularly meet with their advisor to ensure on-time graduation.

**Note 1:** Substitutions for required courses must be approved by your advisor and the department **before** registration in the substituted course, and an approved request (email is OK) from the advisor must be placed in your departmental file.

**Note 2:** The credit/no credit option **may not** be used for any course, or its prerequisite course(s), that is taken to fulfill a specific course requirement in the biochemistry curriculum or general education requirement.

#### A. **The Chemistry Requirement (General, Organic, Physical):**

**General Chemistry:** The General Chemistry sequence, CHEM 102/103 & 104/105, is give students a strong background, especially in laboratory skills. Students who are

placed into the accelerated chemistry (202/203/204/205) can chose which sequence they prefer. We do allow mix and match for example, CHEM 202/203 & 104/105.

**Organic Chemistry:** The two-semester sequence is Chemistry 232/233 and 332. Students with accelerated backgrounds (CHEM 202/203/204/205) may substitute the more intensive sequence Chemistry 266/237 & 436). The second semester laboratory is not required.

**Physical Chemistry:** The preferred two-semester sequence is MCB 493 PBC and Biochemistry 446. MCB 493 PBC (fall only) and BIOC 446 (spring only) are designed to be a one-year sequence in Physical Biochemistry. CHEM 440 does NOT count for the Biochemistry degree.

- B. **The Mathematics Requirement:** Completion of the 3-semester calculus sequence (MATH 220 or 221, 231, and 241) and STAT 212 (Biostatistics) are required for all Biochemistry students. Upon admission, there is a Math placement test to discover if you are ready for Calculus I.
- C. **The Physics Requirement:** The 2 semester sequence is Physics 101 & 102. Students can choose to take the calculus based sequence: PHYS 211, 212 & 213.. PHYS 101 is an indirect duplicate of PHYS 211, 213 and PHYS 102 is an indirect duplicate of PHYS 212 (& 214).

**Note:** Students who take Physics 211 and then wish to switch to Physics 102 may do so as long as they received a grade of “C” or better in Physics 211. Students should be aware that 101 covers more material than 211, which does not cover thermodynamics and fluids. Students who received a grade lower than a “C” in 211 must first enroll in Physics 101 before enrolling in 102.

- D. **The Molecular and Cellular Biology Requirement:** MCB 150, MCB 250/251, MCB 252/253, and MCB 354 are required for all Biochemistry majors. **Note:** MCB 450 *does not* satisfy the degree requirements. The MCB core sequences serves as the prerequisite for most 400-level MCB courses. Students should begin in the spring semester of their freshmen year with MCB 150 and continue in the following fall with MCB 250/251 and MCB 252/253 in the spring of the sophomore year. These courses are offered fall, spring, and possibly summer.

<b><u>Semester Offered</u></b>	<b><u>Fall</u></b>	<b><u>Spring</u></b>	<b><u>Summer</u></b>
MCB Core Courses	150	150	150
	250/251	250/251	250
	252/253	252/253	252
	354	354	

The intent of the MCB requirements is to expose the student to material different from that covered in biochemistry courses in order that students gain an

appreciation of the biological aspects of biochemistry and forms the background for biochemistry courses. **Note:** MCB 250 & 252 with organic chemistry I are the prerequisites for MCB 354. MCB 354 is the pre-requisite for MCB 406, BIOC 455, 460 and BIOP 401.

- E. **The Biochemistry Requirement:** BIOC 406, 455, 460 and BIOP 401 are required for all Biochemistry majors in the revised curriculum.

**BIOC 406 – Gene Expression (3 hours):** Same as MCB 406. This course is designed to follow MCB 354 and is an introduction to gene expression and how different segments of gene expression pathways including gene transcription, RNA processing, protein translation, targeting, activity and turnover are modulated to maintain cellular homeostasis. The technologies (both general and specialized) used currently to analyze gene expression and the regulation of protein function are also discussed.

**BIOC 455 – Techniques in Biochemistry and Biotechnology (4 hours):** Introduction to modern methods of biochemical experimentation. Lectures and labs on the theory and practices underlying various methods and instrumentation. Includes protein purification and quantitative analyses, immunoassays, enzymology, protein and DNA sequencing, DNA arrays, Mass spectroscopy, and bioinformatics.

**BIOC 460 – Biochemistry Senior Seminar (3 hours):** This course fulfills the campus Advanced Composition requirement and is designed to be taken in the fall semester of the senior year. It is also an advanced course that specifically introduces undergraduates to the primary research literature and requires written analyses of current research. Instruction will be given on the writing of scientific papers, and this will also serve as a guide for the students' own senior theses. All written work will be reviewed, critiqued, and re-written. This course addresses the American Society for Biochemistry and Molecular Biology (ASBMB) recommendation to train students in the "ability to assess primary papers critically."

**BIOP 401 – Introduction to Biophysics (3 hours):** This is a required course and is designed to be taken in the senior year. Biophysics is an inherent study within Biochemistry and necessary for the undergraduate student to grasp for future studies and scientific exposure.

- F. **The Advanced Science and Engineering Requirement:** Advanced Technical Electives courses totaling at least 10 hours of which a student can count up to 7 hours of BIOC 492 senior thesis research. Contact the department for an up to date list of approved courses (or see webpage). The ability to take courses outside MCB/Biochemistry is in accord with the ASBMB recommendations for students to take advanced offerings, broadly, in science and engineering.

**BIOC 492 – Senior Thesis Research (4-7 hours over two to three semesters):** Although not a degree requirement, based on a recent report commissioned by the National Institutes of Health and the Howard Hughes Medical Institute, the American Society for

Biochemistry and Molecular Biology (ASBMB) has strongly recommended that two semesters of genuine research experience be incorporated into the students schooling.

- G. **The General Education Requirement:** Students in the Biochemistry Curriculum are required to satisfy the Campus General Education requirements and must complete a minimum of 6 hours each in the Social and Behavioral Sciences, the Humanities and the Arts, Physical/Life science and 9 hours of Cultural Studies: one each of non-Western, US Minority Culture(s) and Western/Comparative Culture(s). The total GenEd requirement is 27 hours. Students must use the *General Education Requirements Course Lists*, which can be found on the UIUC website under the Course Explorer heading to satisfy these requirements.

**Note:** Physical/Life Science gen ed courses are imbedded in the major which reduces the gen ed load to 21 hours.

**Select from LAS Subcategories**

**Requirement** [www.las.uiuc.edu/students/requirements/genedgrid.html](http://www.las.uiuc.edu/students/requirements/genedgrid.html)

<b>Humanities and the Arts</b> 6 hours (minimum)	<i>2 courses:</i>	Literature and the Arts <b>or</b> Historical and Philosophical Perspectives
<b>Social/Behavioral Sciences</b> 6 hours (minimum)	<i>2 courses:</i>	Social Sciences <b>or</b> Behavioral Sciences
<b>Cultural Studies</b> 9 hours (minimum)	<i>1 course:</i> <i>1 course</i> <i>1 course:</i>	Non-Western/US Minority Culture(s) U.S. Minority Culture(s) Western/Comparative Culture(s)

**Note:** Students may elect 1 course in each subcategory (e.g., 1 Social Sciences – 3 hrs and 1 Behavioral Sciences – 3 hrs) or may elect 2 courses in the same category (e.g., 2 Social Sciences courses – 6 hrs).

It is the student's responsibility to check these lists for the current available courses.

- H. **The Cultural Studies Requirement:** All students must satisfy this campus requirement (see above). The requirement consists of one course in each of Non-Western, U.S. Minority Culture(s) and in Western/Comparative Culture(s).

**Advising Tip: DOUBLE DIPPING - You can satisfy two General Education requirements with one course if you choose carefully.** Some courses approved for Cultural Studies also appear on the Humanities/Arts and Social/Behavioral Sciences lists (see above). These courses, if taken, will satisfy both requirements. You cannot double dip one cultural studies for a second cultural studies.

- I. **The Foreign Language Requirement:** Biochemistry students in the revised curriculum are required to complete three semesters of a foreign language at the University level. One year in high school is equal to one semester in college. Biochemistry students who



have satisfactorily completed three years of a single foreign language in high school are not required to take foreign language courses at the University. Proficiency exams are allowed.

- J. **The English Composition Requirement:** All students in the College of L.A.S. are required to complete:

Composition I: Credit is allowed for one of the following: Rhetoric 105, or Communications 111 and 112, or English as a Second Language 114 and 115, etc. This requirement must be completed during the freshman year. AP credit can fulfill this requirement.

Advanced Composition (CompII): This requirement cannot be met by passing a proficiency examination. **Only BIOC 460 will satisfy this requirement for biochemistry students.** (See description on page 8 and course syllabus on pages 26-27).

Courses taken to fulfill the requirements of another degree (e.g., dentistry, etc.), whether at the University of Illinois or at another University, may NOT be used to fulfill any of the degree requirements. This does not apply, however, to LAS approved dual-degree students in Biochemistry (see below).

## UNDERGRADUATE RESEARCH OPPORTUNITIES

### BIOC 290 – LABORATORY PROJECTS

BIOC 290 is highly recommended and intended to provide an opportunity for undergraduate students prior to senior year to receive academic credit for supervised laboratory research projects conducted under the direction of Biochemistry or School of MCB or other faculty member. Contact your academic advisor, Jeff Goldberg (biocug@mcb.illinois.edu), for complete instructions on how to find a lab, fill out the appropriate form and register for the lab course. MCB students use different forms and procedures for MCB 290 and submit their forms to Room 200 Burrill Hall.

NOTE: Up to 10 hours BIOC 290 credit can count towards 120 hours to graduate and the overall GPA. None of the BIOC 290 credit counts in the major GPA.

### BIOC 492 – SENIOR RESEARCH THESIS

A critical component of the specialized Biochemistry curriculum is the meaningful research experience. Registration in BIOC 492 during the senior year is strongly recommended. BIOC 492 provides an excellent opportunity for Biochemistry students to work in a research lab during their senior year. The experience is valuable, especially for those students considering professional or post-graduate education. Admissions committees of both graduate and professional schools look with favor on students with research experience. Senior research may also help the student procure a letter of recommendation from the research advisor. Thesis must be turned in to the department office by the end of your last semester. Format and instructions are sent in fall of your senior year.

Prerequisites for 492 are MCB 354, BIOC 406 and BIOC 455 and BIOC 290 is strongly recommended. Up to 10 hours BIOC 492 credit can count towards 120 hours to graduate and the overall GPA. None of the BIOC 492 credit counts in the major GPA. You can count up to 7 hours of BIOC 492 towards the 10 hours of Advanced Technical electives degree requirement. You do not need to fill out a BIOC 492 form if you are using the same lab as BIOC 290.

### **SUMMER RESEARCH OPPORTUNITIES (FELLOWSHIPS)**

**Jackson Summer Scholar** is awarded to any Biochemistry underclassman in any lab. This monetary award provides, in part, the summer stipend. Nominations, usually due the first week of March, require a nomination letter from the student's research advisor describing the project and the student's qualifications with CV. These are awarded on a competitive basis.

**Biochemistry Summer Scholarship Fellowship (Junior Award)** is awarded to any Biochemistry junior in any lab. This monetary award provides, in part, the summer stipend. Nominations, usually due the first week of March, require a nomination letter from the student's research advisor describing the project and the student's qualifications with CV. These are awarded on a competitive basis.

### **LINK TO FACULTY AND THEIR RESEARCH**

For a complete list of University of Illinois Biochemistry faculty and description of their research please go to <https://mcb.illinois.edu/faculty/biochemistry>.

### **DEPARTMENTAL DISTINCTION**

In order to qualify for graduation with distinction, students must 1) be registered for at least 6 hours of research, including at least 4 hours of BIOC 492, 2) complete a senior thesis with rough draft turned into the department office about March 8, 3) a minimum overall GPA of at least 3.25 at the end of their penultimate semester and 4) letter of nomination from the research advisor including comments on whether the results presented in the thesis are the sole work of the 492 student or if some experiments are a result of collaborative efforts. This should also be made clear in the thesis.

There are 3 different levels of distinction as well as cash awards available for best thesis and best student. See Jeff Goldberg, academic advisor, for details.

### **DEGREE OPTIONS**

Students in the Biochemistry Curriculum receive the Bachelor of Science degree. Although LAS students can take one degree in the Specialized Curriculum of Biochemistry and a second degree in any Science and Letters Field of Concentration in LAS, this is not recommended for Biochemistry majors due to the intensity of the major. LAS students may receive a dual degree if they meet the requirements of both majors and complete 30 additional hours in the second major (150 total hours instead of 120 hours). ([www.admin.uiuc.edu/policy/code/](http://www.admin.uiuc.edu/policy/code/)) **Note:** Students earning a degree in Molecular and Cellular Biology may not also earn a second degree in the Specialized Curriculum in Biochemistry.

**Because Biochemistry is a Specialized Curriculum, double majors are not allowed by the College of Liberal Arts and Sciences. Dual (2<sup>nd</sup>) Degrees may be allowed (see above), but only with college approval.**

**SUB-SPECIALTY (Professional) CODES:** If you are considering one of the health professions, social work or veterinary medicine, you may indicate a specific interest in one of the following sub-specialties. You may use only one code and are not committed to pursue a career in that profession; *the code will simply place your name on an informational mailing list*. If you are interested in one of them, you should so inform your LAS records officer in room 2002 Lincoln Hall. Also, please visit Career Center website for further information.

Pd – preDentistry	PM – PreMedicine	PP – prePhysical Therapy
PJ – preJournalism	PN – preNursing	PX – prePharmacy
PL – prelaw	PO – preOccupational Therapy	PV – preVeterinary Medicine

For additional information, see “Preprofessional Interests,” p. 32. – *LAS Student Handbook* (2007-2008). [www.las.uiuc.edu/students/requirements/](http://www.las.uiuc.edu/students/requirements/)

## MINORS

Biochemistry students fulfill all the requirements for the Chemistry minor. Be sure to see your records officer before your senior year to add the Chemistry minor to your records. Other minors that seem to fit well with the Biochemistry major are: Bioengineering, Physics, and Business, although feel free to find one of special interest to you.

## TRANSFER STUDENTS FROM OTHER COLLEGES

Students who attend a two-year community college or other college with the intent of transferring to the Department of Biochemistry at the University of Illinois, should consider in detail the requirements for the degree and how best to prepare for studies in Urbana. Below is a **suggested two-year program** which should prepare the student for transfer to the University of Illinois. Students interested in transferring into the Biochemistry curriculum should contact Jeff Goldberg (217-244-3149) for advising. For assistance with the transfer process, students should contact LAS.

**Due to the rigorous biology sequence all transfer students should expect to take 3 years to complete their once they arrive on the University of Illinois campus.** Also, all transfer students take a diagnostic/placement test to decide if they should take MCB 150 ahead of the balance of their biology sequence courses. Most transfer student take our MCB 150 on line course the summer before reporting to our campus.

## SUGGESTED TWO-YEAR PROGRAM FOR THE BIOCHEMISTRY CURRICULUM

### FIRST YEAR

FIRST SEMESTER	HOURS	SECOND SEMESTER	HOURS
General Chemistry <sup>1</sup>	4-5	General Chemistry <sup>1</sup>	4-5
Analytical Geometry	4	Calculus I <sup>2</sup>	3-5
Foreign Lang or Gen ed	3-4	Foreign Lang or Gen ed	3-4
Rhetoric and Composition	4	Second gen ed	3-4
Total	16-17	Total	14-18

### SECOND YEAR

FIRST SEMESTER	HOURS	SECOND SEMESTER	HOURS
Calculus II	3-5	Calculus III	3-5
Organic Chemistry I Lect.	3	Organic Chemistry II Lect.	3
Organic Chemistry I Lab.	1-2	Molecular Biology II with lab	5
Molecular Biology I	4	Elective or Gen ed	3-4
Foreign Lang or Gen ed	4	Total	14-17
Total	15-18		

<sup>1</sup>General Chemistry sequences that contain qualitative and quantitative analysis are strongly preferred. Students with mathematic weakness should schedule or plan on taking quantitative analytical chemistry if not available in the general chemistry sequence normally taken in freshman year.

<sup>2</sup>A strong introduction to calculus is required.

Students contemplating transfer into the Biochemistry Curriculum should be aware of several points:

1. Students wishing to transfer must already be on track to have a schedule that can meet the revised curriculum requirements in a timely manner.
2. A good background in qualitative and quantitative chemical analysis is very important. Be prepared to take Chemistry 222/223 (offered in the Fall semester only) if you have not taken an equivalent course or feel your background may be insufficient.
3. A strong background in mathematics is required to understand the necessary concepts of physics and physical chemistry.
4. It is important that students who transfer into Biochemistry after their sophomore year have completed a full year of molecular biology, with at least one semester including lab work (e.g., MCB 150 and MCB 250/251 or equivalent). Anatomy and microbiology courses cannot be substituted.

All transfer students take 3 years to complete a Biochemistry degree after they arrive on campus.

### ADVISING

All Biochemistry students are advised by the Biochemistry advisor, Jeff Goldberg (email [biocug@mcb.illinois.edu](mailto:biocug@mcb.illinois.edu) or phone 217/244-3149). Please contact him anytime during regular business hours for an appointment.

Joining a lab provides students with a unique opportunity to interact individually with a faculty member regarding academics, research, off-campus opportunities and post graduation options. Although Juniors and Seniors may plan their schedules without consulting their Biochemistry

advisor (Jeff Goldberg), self-advising is not recommended. Your advisor is always available by appointment, and registration information is emailed to all biochemistry students for registration periods. Students use their degree audit and online 4 year plan ([https://mcb.illinois.edu/sites/default/files/2022-10/Biochemistry%204%20yr%20plan\\_Oct.2022.pdf](https://mcb.illinois.edu/sites/default/files/2022-10/Biochemistry%204%20yr%20plan_Oct.2022.pdf)) to plan each semester schedule.

Students who are interested in majoring in MCB instead of Biochemistry should meet with an academic advisor in the MCB Advising Office, 200 Burrill Hall, 407 S. Goodwin Ave., Urbana. Phone 217-333-6774 or email [mcbadvising@life.uiuc.edu](mailto:mcbadvising@life.uiuc.edu) to schedule an appointment.

- A. **Honors Advising:** Students wishing to discuss College honors opportunities/scholarships and to obtain information should schedule an appointment with the LAS Honors Dean (217-333-1158). Information on the honors programs available in LAS can be found at: [www.las.uiuc.edu/students/honors/](http://www.las.uiuc.edu/students/honors/).
- B. **DARSweb for Students:** All students enrolled in the LAS College are provided a Degree Audit Report (<https://registrar.illinois.edu/academic-records/dars-audit/>) of all requirements met or to be met. However, ultimate responsibility for the preparation of a sound program, both academically and procedurally, remains with the student. Students who have questions about their DARS Report should schedule an appointment to meet with Jeff Goldberg, 417 RAL.
- C. **LAS Admissions/Records Officers (AROs):** Admissions records officers are responsible for preparing the graduation list and the final audit of students' records for completion of degree requirements. AROs are assigned groups of students based on the students' last names. Students are encouraged to consult with their records officer, all of whom are available on an email or walk-in basis during regular office hours (room 2002 Lincoln Hall) ([www.las.uiuc.edu/students/advising/academicaffairs.html](http://www.las.uiuc.edu/students/advising/academicaffairs.html)).

## CREDIT/NO CREDIT REGISTRATION

Choosing this option enables students to register in *elective* courses outside the Biochemistry major. The credit/no credit option **may not** be used for any course, or its prerequisite course(s), that is taken to fulfill a specific course requirement in the biochemistry curriculum or general education requirement. Students wishing to select this option must complete a Credit/No Credit Request Form and have it approved in the Biochemistry Office of Student Academic Affairs, room 417 RAL.

## TRANSFER CREDIT

Biochemistry majors who are contemplating taking summer session courses at other institutions must first check the Illinois Course Equivalency Guide at [transferology.org](http://transferology.org) to verify that the course has been approved for transfer and is equivalent to the desired UIUC course. The student must have the information verified in writing by a records officer.

## STUDY ABROAD

Transfer credit for the required Biochemistry courses is granted for only School of MCB sanctioned study abroad programs such as Stockholm, Sweden and Pavia, Italy. Biochemistry majors must have at least a 3.0 GPA and are required to complete MCB 354 on the UIUC campus before going abroad. Biochemistry students traditionally go Study Abroad in spring term of their junior and still complete their degree in 4 years. Please see your advisor, Jeff Goldberg in your sophomore year if you might plan to go study abroad.

The Biochemistry Department always recommends to its students who participate in Study Abroad not sanctioned by the School of MCB that they take courses which count as electives or General Education credit and not try to satisfy specific science requirements in the curriculum. These programs should be taken in summer, winter or spring break and not during the fall or spring semesters. All Study Abroad courses approved for transfer by LAS will count toward the 120-hour degree requirement, normally as elective credit. Students interested in pursuing this opportunity should contact the LAS Study Abroad Office  
<https://las.illinois.edu/academics/international/abroad> (2002 Lincoln Hall)

## POST-GRADUATION OPTIONS

Most biochemistry graduates gain employment in industry or government or enter medical school or graduate school. The information below outlines how to investigate these possibilities.

### A. Job Opportunities

1. **The UIUC Career:** Website: [www.careercenter.uiu.cedu/](http://www.careercenter.uiu.cedu/)  
 The University maintains a **Career Services Center**, located at 715 S. Wright Street, right across from the Alma Mater (217-333-0820), which offers a full range of programs, services, resources, and counseling to assist current students with career guidance, exploration, and job-search strategies. The Center also provides graduate and professional school information and supports a paraprofessional program. Use the “Handshake” app online guide in the Career Center site to find an Internship
2. **Biological Sciences:** Internship Website: [https://mcb.illinois.edu/undergrad/opportunities/health\\_careers\\_mentoring/](https://mcb.illinois.edu/undergrad/opportunities/health_careers_mentoring/)  
 The MCB Advising Office maintains a Career Services and Resources Room, located in room 101 Burrill Hall (217-333-6774) that provides information about biologically-related careers. Brochures, pamphlets, and books about specific biological careers are available, as well as information on corporations, government employment opportunities, and graduate programs.  
<https://mcb.illinois.edu/undergrad/advising/resources>
3. **Biotechnology Center:** Website: [www.biotec.uiuc.edu/cgi-bin/placement.pl](http://www.biotec.uiuc.edu/cgi-bin/placement.pl)

The Carver Biotechnology Center maintains a *Placement Office*, room 108 Observatory (901 S. Mathews; Phone: 217-333-1378) which provides a central location for companies seeking candidates for positions in biologically related areas.

4. **Biochemistry:** [www.mcb.uiuc.edu/departments/biochemistry/](http://www.mcb.uiuc.edu/departments/biochemistry/)  
The **Biochemistry Office of Academic Student Affairs** maintains a “Job Opportunities” bulletin board which contains job announcements received by Biochemistry faculty, located in hallway outside room 417 Roger Adams Laboratory. Most opportunities are sent direct to students via email announcements.
- B. **Medical School:** Website: [www.careercenter.uiuc.edu/](http://www.careercenter.uiuc.edu/)  
The University maintains an active *Health Professionals* counseling center as part of the UIUC Career Center, located at 715 S. Wright Street, right across from the Alma Mater. Call 217-333-7079 for an appointment. This office performs such services as: planning academic programs to meet entrance requirements, obtaining letters of evaluation, arranging meetings with representatives of various schools, etc.  
[www.careercenter.uiuc.edu/health/](http://www.careercenter.uiuc.edu/health/)  
US Medical School M.D./Ph.D. Programs:  
[www.aamc.org/research/dbr/mdphd/programs.htm](http://www.aamc.org/research/dbr/mdphd/programs.htm)
- C. **Graduate School:** Websites: [www.gradschools.com](http://www.gradschools.com) or [www.petersons.com](http://www.petersons.com)  
Preparing for Graduate School: [www.careercenter.uiuc.edu/undergrads/gradschool/](http://www.careercenter.uiuc.edu/undergrads/gradschool/)  
Each fall, all Junior and Senior Biochemistry students are invited to a discussion meeting with one or two of the faculty to discuss the general topic of graduate schools. Information regarding graduate programs may be found in “Peterson’s Annual Guides to Graduate Study” which is on reserve in both the Chemistry Library and the Career Center. The Career Center maintains a “Graduate Schools” file which contains materials received from graduate schools in the United States and Canada. Another source of information is the Department of Biochemistry faculty. The educational background of each staff member is given their own webpage. If you are interested in attending a school that was attended by one of the faculty, feel free to make an appointment to discuss that school’s program with the faculty member.

## **APPENDIX**

### **Biochemistry Curriculum Sheet**

<http://catalog.illinois.edu/undergraduate/las/biochemistry-bs/#degreerequirementstext>

### **Sample 4-year schedule**

[https://mcb.illinois.edu/departments/biochemistry/2019\\_Bioc\\_4\\_yr\\_Plan.pdf](https://mcb.illinois.edu/departments/biochemistry/2019_Bioc_4_yr_Plan.pdf)

### **List of Approved Courses**

[https://mcb.illinois.edu/departments/biochemistry/downloads/a\\_adv\\_tech\\_elects.pdf](https://mcb.illinois.edu/departments/biochemistry/downloads/a_adv_tech_elects.pdf)

### **Finding Student Internships**

<https://mcb.illinois.edu/departments/biochemistry/downloads/StudentInternships.pdf>