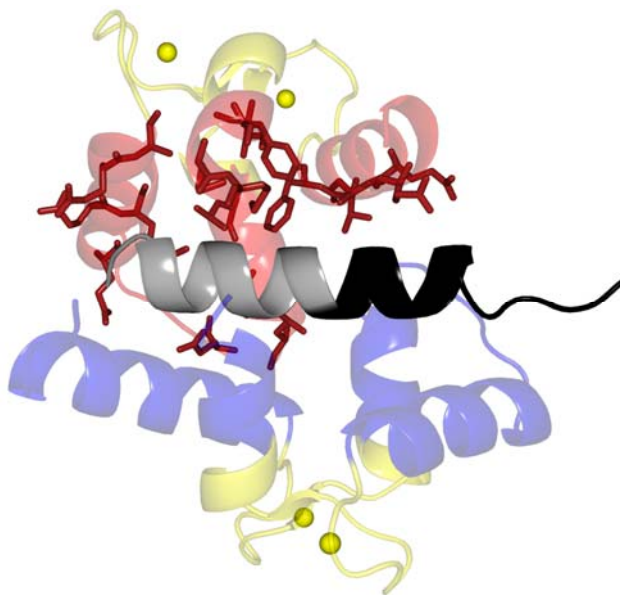


*University of Iowa
Undergraduate Program
In Biochemistry*



2009-2010

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4-403 Bowen Science Building
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Introduction

The Department of Biochemistry is a unit of the College of Medicine as well as the College of Liberal Arts and Sciences. The laboratories and offices of faculty are located primarily in two buildings (Bowen Science Building (BSB) and the Medical Education Research Facility (MERF)), both on the west side of the Iowa River. Biochemistry classes are taught in both buildings as well as others on the medical campus. The main office is located in 4-403 BSB.

The bachelor's degree is conferred through the College of Liberal Arts and Sciences. Students majoring in biochemistry must satisfy the general course requirements and grade point minima as well as the requirements for the Biochemistry major. Good performance in the required Biochemistry

courses is needed for acceptance into 99:155, a Biochemistry research course required for students earning Honors.

If you wish to become a Biochemistry major, please declare your intention at the Liberal Arts and Sciences Office, 120 Schaeffer Hall or do it online. Please register as soon as possible for Orientation and Introduction to the Field of Biochemistry (99:001, 0 s.h.). Declared majors will receive Departmental newsletters and announcements. Please share your active preferred e-mail address with Brenda Kunkel, the Undergraduate Coordinator (brenda-kunkel@uiowa.edu).

Faculty Advisors of Undergraduate Majors for 2009-2010

	<u>Advisor</u>	<u>Office</u>	<u>Telephone</u>	<u>E-mail</u>
General Advisor	A. Fulton	4-506 BSB	335-7891	alice-fulton@uiowa.edu
Honors Advisor	B. Plapp	4-712 BSB	335-7909	bv-plapp@uiowa.edu

Students entering the University of Iowa are assigned an advisor from the Academic Advising Center (AAC). AAC advisors are able to provide a broad perspective on many available courses and majors. However, the students who declare Biochemistry as a major also have an advisor who is a member of the Biochemistry faculty. In addition to having an advisor in Biochemistry, students may have a *Premedicine Advisor* in the Undergraduate Advising Center. The advisor in Biochemistry is the one who will make final decisions about what coursework will be accepted for completion of the major.

Each semester, students are expected to contact their advisors to discuss courses for the forthcoming semester. If Biochemistry is your primary major, your Biochemistry advisor will give you your registration number(s) (for Spring in the Fall and for Summer and Fall at your Spring meeting). If you are a double-major, you may obtain those numbers from another advisor, but are encouraged to have a semi-annual meeting with a Biochemistry advisor. If you choose to use e-mail to set up an appointment, please consider including the word "advising" in the subject line of your message.

Students often need to obtain signatures around deadlines such as add/drop days. Please be aware that faculty may have professional obligations that take them off-campus. You are welcome to call the Undergraduate Coordinator in the Biochemistry Office (335-7931) who will assist you in locating your advisor for signatures.

Cover Figure:

Calmodulin bound to the C1 Region of the NR1 subunit of the NMDA Receptor; amino acid sidechains of the CaM C-domain interacting with C1 are shown as red sticks (2hqw.pdb, 1.96 Å; Akyol, Gakhar, Sorensen, Hell & Shea).

Biochemistry Degree Course Requirements

Requirements for the Bachelor Degrees (B.S., B.A.) are divided into those necessary for all Liberal Arts degrees and those specifically needed to complete requirements for a major in biochemistry. Charts showing sample 4-year curricula are included at the end of this pamphlet.

Liberal Arts General Education Program (GEP)

Rhetoric	3-8 s.h.
Interpretation of Literature, 8G:1	3 s.h.
Humanities	3 s.h.
Social Science	3 s.h.
Historical Perspectives	3 s.h.
Distributed Education	6 s.h.

The foreign language requirements, as explained in the University of Iowa General Catalog under the College of Liberal Arts and Sciences, are the same for both B.A. and B.S. degrees. Depending on previous course work, the foreign language requirement is 0-16 s.h. Some students find that taking a foreign language at a community college eases scheduling strain for them.

The total GEP course requirement is 21-42 s.h. However, many GEP requirements can be satisfied in part or entirely by examinations. The GEPs for Quantitative or Formal Reasoning and for Natural Science are automatically satisfied in the structure of the Biochemistry program.

Specific Requirements for both the B.A. and B.S. Degrees in Biochemistry

Biological Sciences

2:010, 011 Principles of Biology I, II F,S,Su 8 s.h.

Chemistry

4:011 Principles of Chemistry I F,S,Su 4 s.h.

4:012 Principles of Chemistry II F,S,Su 4 s.h.

Two semesters of organic chemistry – Recommended

4:123 Organic Chemistry I F 3 s.h.

4:124 Organic Chemistry II S 3 s.h.

Also accepted

4:121 Organic Chemistry I F,S,Su 3 s.h.

4:122 Organic Chemistry II F,S,Su 3 s.h.

One semester of physical chemistry or biophysical chemistry –

4:131 Physical Chemistry I F,S 3 s.h.

or 4:132 Physical Chemistry II F,S 3 s.h.

or 99:241 Biophysical Chemistry I F 3 s.h.

or 99:242 Biophysical Chemistry II S 3 s.h.

Biochemistry

99:001	Orientation and Intro. to Biochemistry	F	0 s.h.
99:101	Technical Communication in Biochemistry	S	1 s.h.
99:120	Biochemistry and Molecular Biology I	F	3 s.h.
99:130	Biochemistry and Molecular Biology II	S	3 s.h.
99:140	Experimental Biochemistry	S	4 s.h.

Math

22M:025	Calculus I	F,S,Su	4 s.h.
22M:026	Calculus II	F,S,Su	4 s.h.

Physics

	<i>For the B.A. –</i>		
29:011,12	College Physics I, II	F,S,Su	8 s.h.
	<i>For the B.S. –</i>		
29:081,82	Introd. Physics I, II	F,S	8 s.h.
	Advanced Science Electives		6 s.h.

ADDITIONAL OR SEPARATE REQUIREMENTS FOR B.S. DEGREE

4:142	Organic Chemistry Laboratory (recommended)	S	3 s.h.
or 4:141	Organic Chemistry Laboratory (accepted)	F,S,Su	3 s.h.
4:132	a second semester of Physical Chemistry	F,S	3 s.h.
or 4:131			
or 99:241	Biophysical Chemistry I	F	3 s.h.
or 99:242	Biophysical Chemistry II	S	3 s.h.

for a total of two courses in Biophysical Chemistry

Additional Advanced Science Electives for a total of 15 s.h. Of the 15 hrs, a total of 6 s.h. must be advanced laboratory courses (or laboratory hrs within an advanced science elective). This may include up to 6 s.h. of 99:155 (99:115 does not qualify). A list of acceptable courses is available on the departmental website (<http://www.biochem.uiowa.edu/undergrad.asp>).

Please note that BA majors are welcome to do research, too, and may earn Honors in Biochemistry.

To be eligible to register for 99:155, students must have:

- 1) Grades of B- or better in each of the courses 99:120, 99:130 and 99:140; *and*
- 2) an average of B or better in the three courses.

Under special circumstances, exceptions to these grade requirements may be made upon consultation with the Honors Advisor and with the consent of the instructor. Please note that once you are assigned to a laboratory for 99:155 research, you will need to obtain the individual instructor number for that faculty member so that you can register for the correct section of the course. Instructor numbers may be obtained either from the faculty member or by calling the Biochemistry Office at 335-7931.

A total of 71-92 s.h. is required to satisfy the GEP and the major requirements for the Biochemistry B.A. degree, and 89-110 s.h. for the B.S. degree. Since a grand total of 120 s.h. is required for a bachelor's degree, there is room for additional electives. In order to be granted a degree from the College of Liberal Arts and Sciences, students must have satisfactory grade-point averages. Candidates for B.A., B.S., B.F.A., and B.M. degrees must earn a at least 2.00 (C) in all four of the following GPA calculations:

- all college work attempted;
- all work undertaken at The University of Iowa;
- all work attempted in the major field; and
- all University of Iowa work in the major.

Students should note that the University requires a GPA of 2.0 in the major for graduation. This GPA is based on all 099 courses, and required calculus, biology, chemistry and physics courses. This includes 002:010 & 002:011, but not some other advanced biology courses. This does not include courses used to satisfy the "advanced science elective requirement" which draws from many departments.

***Examples of
Advanced Science Electives
Accepted for B.A. and B.S. Degrees***

The requirement for advanced science electives is intended to help students expand their education by pursuing courses outside the standard Biochemistry undergraduate curriculum. The requirement usually is fulfilled by taking classes that are 100-level or higher (though some lower level classes may be acceptable). There are some 200-level Biochemistry courses that also qualify.

Note: Research in Biochemistry (i.e., 99:115, 99:155 and 143:100) is not accepted for the first nine hours of advanced science electives.

The following list provides examples of courses that have been used to satisfy this requirement by Biochemistry majors in recent years. Note that some of these courses are offered only in the spring or fall semesters. Many other courses may be taken to fulfill the science elective requirements.

The faculty advisor will help students determine whether a class will qualify for this requirement. Sometimes it will be necessary for the student to obtain a syllabus or other information from the instructor in advance.

Students attempting to satisfy the requirements of a double major or major/minor are especially urged to discuss this in advance for the greatest economy in registration. Note that a minor in Chemistry is one of the minors that is most compatible with a major in Biochemistry. Please check with the Chemistry department about their current course requirements if you are interested in this option.

Biology

002:100	Land Plants Evo Sur	4 s.h.	S
002:104	Introd. to Develop. Biol.	3 s.h.	F
•002:108	Vertebrate Zoology	4 s.h.	Su
002:110	Plant Physiology	3 s.h.	S
002:114	Cell Biology	3 s.h.	S
002:123	Plant Biochemistry	3 s.h.	F
002:124	Animal Physiology	3 s.h.	S
002:128	Fundamental Genetics	4 s.h.	F,S
002:131	Evolution	4 s.h.	F,S
002:133	Cell Biology Lab	3 s.h.	F
002:135	Developmental Biology Lab	3 s.h.	S
002:138	Genetics and Biotechnology	3 s.h.	S
002:140	Systematics	3 s.h.	F, Su
002:143	Animal Behavior	4 s.h.	F
002:150	Endocrinology	3 s.h.	F
002:155	Cell Physiology	4 s.h.	F
002:168	Genes & Develop	3 s.h.	S
002:180	Introd. to the Neurosci	4 s.h.	F
002:192	Basis Bio Human Disease	2 s.h.	S
002:197	Topics in Plant Mol Biol	1-2 s.h.	F

Biochemistry

099:226	Enzyme Kinetics and Mech	1,2 s.h.	S
099:237	Topics in Biochemistry	1 s.h.	F
099:238	Topics in Biophysical Chemistry	1 s.h.	S

Biomedical Engineering

051:176	Biomaterials Laboratory	3 s.h.	S
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Biostatistics

171:161	Intro to Biostatistics	3 s.h.	S
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Chemical and Biochemical Engineering

052:171	Thermodynamics/Transport Lab	3 s.h.	F
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Chemistry

004:111	Analytical Chemistry I	3 s.h.	F
004:112	Analytical Chemistry II	3 s.h.	S
004:123	Organic Chem I for Majors	3 s.h.	F
004:125	Inorganic Chemistry	2 s.h.	S
004:141	Organic Chem Lab*	3 s.h.	F,S,Su
004:143	Analytical Measurements	3 s.h.	S
004:144	Physical Measurements	3 s.h.	F
004:153	Inorganic Chem Lab	3 s.h.	F
004:170	Advanced Inorganic Chem	3 s.h.	F
004:172	Advanced Organic Chem	3 s.h.	F
004:228	Mech Organic Reactions	3 s.h.	S

Civil and Environmental Engineering

053:153	Environmental Chem Lab	3 s.h.	F
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Geoscience

012:122	Evolution of Vertebrates	3 s.h.	S
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Global Health Studies

052:136	History of Medicine	3 s.h.	F
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Integrative Physiology

027:142	Exercise Physiology Lab	2 s.h.	F
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Mathematics, Statistics and Computer Science

22M:028	Calculus III	4 s.h.	F
22M:047	Linear Algebra & Diff. Eqs	3 s.h.	F
22M:100	Differential Equations	3 s.h.	F,S,Su
22M151	Discrete Math Models	3 s.h.	S
22S:101	Biostatistics	3 s.h.	F,S,Su
22S:102	Intro to Statistical Methods	3 s.h.	F,S,Su
22S:120	Probability & Statistics	4 s.h.	F,S,Su

Microbiology

061:147	Survey of Immunology	4 s.h.	S
061:157	General Microbiology	5 s.h.	S
061:159	Pathogenic Bacteriology	5 s.h.	S
061:160	Microbial Physiol	3 s.h.	S
061:163	Seminar Micro	2 s.h.	F,S
061:164	Health Sciences Microbiol	4 s.h.	S
061:168	Intro to Animal Virsuses	3 s.h.	F
061:170	Microbial Genetics	3 s.h.	F
061:175	Microbial Genetics Lab	3 s.h.	F
061:180	Microbial Physiology Lab	2 s.h.	S
061:217	Integrated Topic Id	1 s.h.	F,S

Pharmacology

071:130	Drug Mechanism and Action	3 s.h.	S
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Physics and Astronomy

029:128	Electronics	4 s.h.	S
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Physiology and Biophysics

072:150	Physiology for Pharm Students	4 s.h.	S
072:154	Physiology for Biomed Eng	4 s.h.	S

Psychology

031:117	Psych Prnatl Dev	3 s.h.	F
031:118	Infant Development	3 s.h.	F
031:120	Exper Psychol I	3 s.h.	F,S
031:121	Exper Psychol II	4 s.h.	F,S
031:126	Behavioral Neuroscience	3 s.h.	S
031:128	Psychopharmacology	3 s.h.	F
031:133	Sensation and Perception	3 s.h.	F,S
031:163	Abnormal Pschy	3 s.h.	F,S
031:166	Child Psychopathol	3 s.h.	F,S
031:177	Field Methods: Animal Behavior Research	3 s.h.	Su
031:195	Honors Seminar in Psychiatry	1 h.	F,S

●Courses in bold can be used to satisfy the 6 s.h. research requirement for the B.S. degree. The B.S. degree requires a total of 15 s.h. of Advanced Science Electives, of which 6 s.h. must be research intensive.

*Available for Advanced Science Electives *only* for the B.A. degree; *required* for the B.S. degree.

For Double or Triple Majors, and subject to approval of Biochemistry Academic Advisor: Independent Research in Biology, Chemistry or Microbiology

002:196	Honors Investigation		
004:162	Undergraduate Research in Chemistry		
061:161	Undergraduate Research in Microbiology		

On-Campus Research

We encourage students to become affiliated with a laboratory in the Department of Biochemistry early in their undergraduate career (prior to taking 99:155) via courses such as 99:115 (Undergraduate Independent Study) and 143:100 (Honors Research Practicum). Part-time jobs assisting in ongoing research projects also are available. An **application** for research opportunities is provided as the **last page of this brochure**. Please submit the completed form to the receptionist in the Biochemistry office (4-403 BSB) who will distribute it to faculty members.

Honors In Biochemistry

To receive a biochemistry degree with honors, a student must:

- a. Be in the University of Iowa Honors Program (G.P.A. of 3.33 required to graduate with honors). See http://www.uiowa.edu/~honors/general_info/member_ship.html for more information.
- b. Register for and complete at least 6 sem. hrs. of 99:155 (Undergraduate Research).
- c. Complete a research project in 99:155 and write up the work in the form of a paper suitable for publication in a scientific journal. Actual publication is not required. The research and written document must be accepted and approved by the student's research advisor. The title page of the Honors thesis is to be signed by *both* the Honors Thesis Supervisor and the Biochemistry Honors Advisor. The Honors Thesis/Project Title Page Guidelines may be obtained from <http://www.uiowa.edu/~honors/forms/index.html>.
- d. Present the research results orally at a special departmental seminar. This is arranged by the Undergraduate Coordinator (Brenda Kunkel) close to the end of each semester.

Honors students are also eligible to do research under the course number 143:100 (Honors Practicum), before they have satisfied the prerequisites for 99:155. For more information, see <http://www.uiowa.edu/~honors>. This website has links to sign up for a listserv (and it is open to all students). It offers information about scholarships (e.g., Rhodes Dunlap and Goldwater), volunteer opportunities, and enrichment activities.

Departmental Policy on Taking 99:155 Supervised by Professors outside the Biochemistry Department

Students who enroll for 99:155 are expected to conduct research in the laboratory of a Biochemistry faculty member. Exceptions to this rule will be made rarely, and on an individual basis. Students who wish an exemption should discuss the matter with the Honors Advisor. A brief description of the planned research project will be required to document that the student will have principal responsibility for his or her project, and that the project is biochemical in focus. All students who receive an exemption will write a paper and present a seminar on their work, to permit the Biochemistry faculty to evaluate their progress.

Biochemistry Course Descriptions

99:001 Orientation and Introduction to Biochem (0 s.h.) Required of all beginning Biochemistry majors. Description of the field of biochemistry and its application to other areas of basic sciences; discussion of biochemical studies, research and careers. Meets on the first Wednesday of each month in the Fall semester.

99:101 Technical Communication in Biochemistry (1 s.h.) Practical aspects of writing formal scientific papers and giving oral presentations on technical topics. Open only to juniors and seniors. Prerequisite: 99:120 or 99:130 or 99:140, or consent of instructor.

99:110 Introduction to Biochemistry (3 s.h.) A one-semester course that surveys the basic concepts in modern biochemistry and molecular biology. The objective of 99:110 is to provide an understanding of life processes in molecular terms. Recommended: one semester of organic chemistry. (*course does not substitute for 99:120 or 99:130, not intended for majors*).

99:115 Undergraduate Independent Study (arr.) Independent study with a faculty member in Biochemistry arranged by student and instructor. No prerequisites. May be taken in any year. Consent of instructor required. Class may be arranged as a tutorial or as a commitment to experimental work. Students gain experience in an active biochemistry research lab, learning and performing experiments or researching a topic relevant to the current projects in that lab. This course offers research experience in preparation for meeting the requirements for 99:155. Study is arranged in advance by student and faculty member. Students should expect to commit about 5 hours of lab time for each s.h. of credit in fall or spring; 10 hrs per s.h. in summer. However, this will vary depending on the type of project. It is extremely important for students to discuss expectations with their instructor before embarking on a project. May be repeated for a total of 6 s.h. (Does not count as an advanced science elective).

99:120 Biochemistry & Molecular Biology I (3 s.h.) Physical and chemical foundations of biochemistry, structure of biological molecules, catalysis, transport, and oxidative reactions in biology; first course of two-semester sequence that concludes with 99:130. Prerequisites: two semesters of general chemistry and one of organic chemistry. Recommended: 002:010, 002:011, and an additional organic chemistry course.

99:130 Biochemistry and Molecular Biology II (3 s.h.) Course covers metabolism of lipids and nitrogen-containing compounds; regulation and integration of metabolism; information transfer in prokaryotes and eucaryotes; recombination DNA techniques; and chemistry and enzymology of replication, transcription, translation, cell transformation, and regulation of gene expression. Prerequisite: 99:120.

99:140 Experimental Biochemistry (4 s.h.) Quantitative and qualitative experiments on identification, fractionation, and characterization of constituents of biochemical systems; use of modern instruments and techniques for spectrophotometry, chromatography, electrophoresis, centrifugation and radioisotope studies; emphasis on experimental design and interpretation. For graduate students and advanced undergraduates in biochemistry and other sciences. Prerequisites: 4:016 or 4:020, and 99:120. (Fall semester).

99:155 Research, Independent Study (2-6 s.h.) Students pursue independent study and research in areas of interest to them. Students should expect to commit about 5 hours of lab time for each s.h. of credit in fall or spring; 10 hrs per s.h. in summer. However, this number will vary depending on the type of project. It is extremely important for students to discuss expectations with their instructor before embarking on a project. Assignments to laboratories for 99:155 research are made by the Director of Undergraduate Studies, in consultation with students and faculty members in advance of enrollment in course. Required in B.S. program. Must be taken to graduate with honors. Prerequisites: completion of 99:120, 99:130 and 99:140 with grades of B⁻ or better, and an overall average of B or better in the three courses, or consent of instructor.

***99:226 Enzyme Kinetics & Bioorganic Mechanisms (1-2 s.h.)** This course covers the principles and applications of steady-state and transient enzyme kinetics, and the mechanisms of catalyses of biochemical reactions. Prerequisite: 99:120 or consent of instructor.

***99:237 (Fall 2007) Topics in Molecular and Cellular Biology (1-2 s.h.)** Current topics in transcriptional regulation, chromatin structure and function, cell signaling pathways, regulation of development, molecular mechanisms of disease. Prerequisite: 156:201 or consent of instructor.

***99:238 (Spring 2008) Topics in Biophysical Chemistry (1-2 s.h.)** Current topics in structure and function of membranes or proteins; DNA-protein interactions; computational biochemistry; applications of NMR, X-ray diffraction, calorimetry, or spectroscopy. Prerequisites: 99:241 or 99:242 or consent of instructor.

***99:241 Biophysical Chemistry I (3 s.h.)** Experimental and theoretical techniques used to study structure and function of biological macromolecules; UV/Vis absorbance, circular dichroism, and fluorescence spectroscopies; X-ray crystallography of proteins; ultracentrifugation; application of thermodynamics to understand protein folding and protein-ligand binding. Prerequisite: one year of biochemistry and consent of instructor. Recommended: course in physical chemistry.

***99:242 Biophysical Chemistry II (3 s.h.)** Course complements but is independent of 99:241. Enzyme kinetics and mechanisms, macromolecular interactions and dynamics, NMR spectroscopy.

***Note:** UG needs permission of the advisor and the course director to enroll in 99:226, 99:237, 99:238, 99:241 and 99:242.

*Sample Curriculum
of Courses Required for the
Bachelor of Science (BS) Degree in Biochemistry*

Freshman Year

<u>Semester I</u>			<u>Semester II</u>		
Principles of Chemistry I	4:011	4 s.h.	Principles of Chemistry II	4:012	4 s.h.
Calculus I	22M:025	4 s.h.	Calculus II	22M:026	4 s.h.
Orientation (4 evenings)	99:001	0 s.h.			

Students may begin research in the Dept. of Biochemistry at any time; please consult your advisor if you are interested and complete the form included as the last page of this pamphlet.

Sophomore Year

<u>Semester I</u>			<u>Semester II</u>		
Principles in Biology	2:010	4 s.h.	Principles in Biology	2:011	4 s.h.
Organic Chemistry I	4:123 (or 121)	3 s.h.	Organic Chemistry II	4:124 (or 122)	3 s.h.
[Introductory Physics I] ¹	29:081	4 s.h.	Organic Chemistry Lab	4:142 (or 141)	3 s.h.

Junior Year

<u>Semester I</u>			<u>Semester II</u>		
Biochem. & Mol. Biol. I	99:120	3 s.h.	Biochem. & Mol. Biol. II	99:130	3 s.h.
[Science Elective] ²		x	Experimental Biochemistry	99:140	4 s.h.
[Introductory Physics II]	29:082	4 s.h.	[Physical Chemistry I] ³	4:131	3 s.h.

Summer Session

Undergraduate Research⁴ 99:155 usually 2-3 s.h.

Senior Year

<u>Semester I</u>			<u>Semester II</u>		
[Physical Chemistry II] ³	4:132	3 s.h.	Technical Communication	99:101	1 s.h.
Biophysical Chemistry I ³	99:241	3 s.h.	Biophysical Chemistry II ³	99:242	3 s.h.
[Science Elective] ²		x	[Science Elective] ²		x
Elective with Research	99:155	x	Elective with Research	99:155	x

¹Scheduling of courses in brackets [] are suggestions only. Some courses are also offered in the summer, which has not been indicated on these sample schedules.

²Fifteen (15) s.h. of advanced science electives are required in the B.S. program. Science electives may be taken at any time during the curriculum. Note that 99:115 does not fulfill this requirement, but up to 6 s.h. of 99:155 may be used.

³Students in B.S. program are required to take two of the following courses: 4:131, 4:132, 99:241, 99:242.

⁴A total of 6 s.h. of 99:155 are required for honors. The number of semester hours of research, in any given semester, will depend upon arrangements between student and research advisor. Prerequisites are Biochemistry & Molecular Biology I and II (99:120 and 99:130), and Experimental Biochemistry (99:140), at an average grade of B or better and with B- or better in each course.

**Sample Curriculum
of Courses Required for the
Bachelor of Arts (BA) Degree in Biochemistry**

Freshman Year

<u>Semester I</u>			<u>Semester II</u>		
Principles of Chemistry I	4:011	4 s.h.	Principles of Chemistry II	4:012	4 s.h.
Calculus I	22M:025	4 s.h.	Calculus II	22M:026	4 s.h.
Orientation (4 evenings)	99:001	0 s.h.			

Students may begin research in the Dept. of Biochemistry at any time; please consult your advisor if you are interested and complete the form included as the last page of this pamphlet.

Sophomore Year

<u>Semester I</u>			<u>Semester II</u>		
Principles in Biology	2:010	4 s.h.	Principles in Biology	2:011	4 s.h.
Organic Chemistry I	4:123 (or 121)	3 s.h.	Organic Chemistry II	4:124 (or 122)	3 s.h.
[College Physics] ¹	29:011	4 s.h.			

Junior Year

<u>Semester I</u>			<u>Semester II</u>		
Biochem. & Mol. Biol. I	99:120	3 s.h.	Biochem. & Mol. Biol. II	99:130	3 s.h.
[College Physics]	29:012	4 s.h.	Experimental Biochemistry	99:140	4 s.h.
[Science Elective] ²			[Physical Chemistry I] ³	4:131	3 s.h.

Senior Year

<u>Semester I</u>			<u>Semester II</u>		
			Technical Communication	99:101	1 s.h.
Biophysical Chemistry I ³	99:241	3 s.h.	Biophysical Chemistry II ³	99:242	3 s.h.
[Science Elective] ²		x	[Science Elective] ²		x

¹Scheduling of courses in brackets [] are suggestions only. Some courses are also offered in the summer, which has not been indicated on these sample schedules.

²Six (6) s.h. of advanced science electives are required in the B.A. program. Science electives may be taken at any time during the curriculum. Note that 99:115 and 99:155 do not fulfill this requirement.

³Students in B.A. program are required to take one of the following courses: 4:131, 4:132, 99:241, 99:242.

UI Carver College of Medicine Dept. of Biochemistry Application for Research Opportunity

Please submit your completed form to the receptionist in the Biochemistry Office (4-403 BSB). It will be distributed to departmental faculty.

Today's Date: _____

Contact Information & Availability

Your Name: _____

Address: _____

Phone Number: _____

Answering Machine? (circle one) Yes No

E-mail Address: _____

Please indicate below the opportunities of interest to you (check all that apply).

	<i>s.h. or hrs./week</i>	
99:115*		
143:100**		
Part-time Job		
Full-time Job		

Availability (circle all that apply)

Fall Spring Summer

If interested in paid work, do you qualify for WORKSTUDY funding?

Yes No If "yes", eligibility(\$): _____

Indicate "open blocks" of time when you are available.
(for current or upcoming semester)

	<i>Morning</i>	<i>Afternoon</i>
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		
Other		

Academic and Career Information

Current Major (if any) _____

GPA (College) _____

Current Year in School (circle one or indicate graduation year)

GPA (High Sch) _____

Freshman Sophomore Junior Senior
 Other/graduation year _____

Career Goals (if decided): _____

Major Field(s) of Interest: _____

Courses You Have Enjoyed _____

Other Comments (if any) _____

References (include phone & E-mail addresses, if known)

* **99:115 Undergraduate Independent Study** has no prerequisites and is open to non-majors as well as majors.

It may take the form of a tutorial or laboratory experience, and is usually taken for 1-2 s.h..

** **143:100 Honors Practicum** is open only to students in the Honors Program.

To arrange these classes, you are welcome to approach prospective supervisors individually.

A listing of faculty research interests is available on the website www.biochem.uiowa.edu.