

# MS in Biochemistry and Biotechnology

## Degree Requirements

### Master of Science in Biochemistry and Biotechnology

The Biochemistry and Biotechnology Program offers ~~two~~ **three** types of Master of Science degrees.

- One is a non-thesis option suitable for those with laboratory research experience or for others, such as educators, who do not require research experience.
- **The second is a 32 credit hour Professional Science emphasis area that includes a strong business component for students who are interested in learning more about the business aspects of companies. This track may not be appropriate for students who are interested in pursuing a PhD or working primarily as laboratory scientists.**
- The ~~other~~ **third** option includes laboratory-based research under the supervision of one of the program faculty members, leading to a written thesis. All students admitted to the graduate program are considered to be in the non-thesis program. They may transfer into the thesis program after they have been accepted as a thesis student by one of the faculty.

### M.S. Admission Requirements

Applicants to the M.S. program must submit a completed application and personal data forms, two letters of recommendation from faculty at previously-attended colleges or universities, and transcripts of all previous postsecondary academic work. Applicants whose undergraduate degree is from a university outside of the United States must submit GRE scores (verbal, quantitative, and analytical). For students with a degree from a U.S. university, submission of Graduate Record Examination scores, although not required, is highly recommended. Admission as a regular graduate student requires graduation from an accredited college with a minimum grade point overall and in biology and chemistry courses of 3.0 (where A=4.0). Students will generally be expected to have completed a major in biology, chemistry, biochemistry or biotechnology. In addition to the Graduate School admission requirements, applicants should have completed an undergraduate course in biochemistry (equivalent to [BIOL 4712](#) / [CHEM 4712](#)). Successful applicants will typically have completed courses in organic chemistry, cell biology, and genetics. Applicants may be asked to make up any deficiencies in these areas as a condition of enrollment.

All international applicants, except those from countries where English is the primary language, must take the TOEFL. Ordinarily, a score of 213 on the computer-based exam (550 on the paper-based exam or 80 on the internet-based exam) or better is required.

### Requirements

Both the thesis and non-thesis options require a total of 30 graduate credit hours, of which at least half must be at the 5000-level or above. A maximum of 12 or 5 credit hours of Graduate Research ([BIOL 6905](#) or [CHEM 6905](#)) may be applied toward the 30 credit hour total for the thesis or non-thesis options, respectively. Students must have a 3.0 GPA in non-research courses.

Required Courses		
<a href="#">CHEM 4722</a>	Advanced Biochemistry	3
<a href="#">CHEM 5774</a>	Bioinformatics	3
<a href="#">BIOL 6615</a>	Advanced Biotechnology Laboratory II	4
<a href="#">BIOL 6602</a>	Advanced Molecular Biology	3
<a href="#">BIOL 6889</a>	Graduate Seminar	2
Elective Courses		
<a href="#">CHEM 4733</a>	Biochemistry Laboratory	2
<a href="#">CHEM 4772</a>	Physical Biochemistry	3

<a href="#">CHEM 5694</a>	Special Topics In Organic Chemistry	3
<a href="#">CHEM 5794</a>	Special Topics In Biochemistry	3
<a href="#">CHEM 6787</a>	Problem Seminar In Biochemistry	1
<a href="#">CHEM 6905</a>	Graduate Research In Chemistry	1-10
<a href="#">BIOL 4842</a>	Immunobiology	3
<a href="#">BIOL 5069</a>	Topics In Cellular And Molecular Biology	1
<a href="#">BIOL 6442</a>	Advanced Developmental Biology	3
<a href="#">BIOL 6550</a>	Advanced Bacterial Pathogenesis	3
<a href="#">BIOL 6602</a>	Advanced Molecular Biology	3
<a href="#">BIOL 6612</a>	Advanced Molecular Genetics Of Bacteria	3
<a href="#">BIOL 6622</a>	Advanced Cellular Basis of Disease	3
<a href="#">BIOL 6632</a>	Advanced Nucleic Acid Structure And Function	3
<a href="#">BIOL 6642</a>	Advanced Plant Biology And Biotechnology	3
<a href="#">BIOL 6652</a>	Advanced Virology	3
<a href="#">BIOL 6699</a>	Graduate Internship In Biotechnology	1-4
<a href="#">BIOL 6889</a>	Graduate Seminar	2
<a href="#">BIOL 6905</a>	Graduate Research In Biology	1-10
<a href="#">BIOL 6920</a>	Topics In Biology (when relevant)	2-5

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Sign-offs from other departments affected by this proposal

Department	Contact Person	Phone #	Objections
<b>S002850</b>	<b>Patricia Parker</b>	<b>X6576</b>	<b>No</b>

Rationale Adding language for a new Professional Science emphasis area. The description of the new emphasis area is in a separate courseleaf file that is awaiting approval by the Senate C&I committee.