

**REQUIREMENTS FOR THE B.S. DEGREE IN THE JOINT MAJOR IN BIOCHEMISTRY<sup>¶</sup>****Fall 2003****Note: Biochemistry majors *may not* double-major in Biology or Chemistry, or minor in Biology or Chemistry**

<b>Course Number</b>	<b>Course Title</b>	<b>Credits</b>
Biochem 383+384	Biochemistry I & II	6
Biochem 385+386	Biochemistry Laboratory I & II	6
Biology 111+112	General Biology I & II	8
Biology 212 (or 210)*	Cell Biology (lecture) (or lecture & lab)	3 (4)
Biology 254 (or 252)*	Genetics (lecture) (or lecture & lab)	3 (4)
Biology 372 (or 370)*	Molecular Biology (lecture) (or lecture & lab)	3 (4)
Chemistry 103+104	Chemical Principles I & II	8
Chemistry 253+254	Organic Chemistry I & II	8
Chemistry 311	Analytical Chemistry	4
Chemistry 313	Analytical Chemistry Laboratory	2
Chemistry 312	Physical Chemistry (lecture)	4
Math 140+141 <sup>§</sup>	Calculus I & II	8
Physics 113+114	Fundamentals of Physics I & II	8
Physics 181+182	Physics Laboratory I & II	2

**Total: 73-76**

<sup>¶</sup> A final GPA of 2.0 or better in all biochemistry, biology, and chemistry courses is required for the Biochemistry B.S. degree. Biochemistry 383-386 *and* a minimum of 15 credit hours of biochemistry/biology/chemistry courses must be completed at UMB.

\* Students may substitute Bio 210 for 212, Bio 252 for 254 and Bio 370 for 372 if they so desire.

<sup>§</sup> Students must pass the placement exam to enroll in these courses.

**Also available for qualified students:**

Biochem 471/472	Readings in Biochem I & II	1-3 each term
Bio/Chem L680	Physical Biochemistry	3
Biochem 480	Special Topics	3

**Recommended for research experience:**

Biochem 491/492	Directed Research I/II	1-6 each term
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**Students may alternatively/also enroll for research experience in:**

Bio 478/479	Independent Study I & II	1-3 each term
Chem 481-482	Advanced Laboratory I & II	1-4 each term
Chem 491-492	Senior Thesis I & II	4 each term

**Recommended for instrumentation erudition:**

Chemistry 361	Analytical Instrumentation	4
CompSci 110 <i>and/or</i>	An Introduction to Computing	4
Biol 608 <i>and/or</i>	Biophysical Instrumentation	4
Chem 408 <i>and/or</i>	Chemical Computation	3
Biol 664	Computer Analysis of DNA & Protein Structure	3

**Honors**

A minimal cumulative GPA of 3.0 + a minimal GPA of 3.3 in all biochemistry, biology, and chemistry courses + completion of Biochemistry 491 and/or 492 (an independent research project with a written thesis, and a presentation before an audience).

**Pass/Fail Requirements:**

One mathematics or physics course required for the major may be taken on a pass/fail basis. No required biochemistry, biology, or chemistry course required for the major may be taken on a pass/fail basis.

**Recommended Course Sequence**

Year 1 Fall:	Biol 111, Chem 103, First Year Seminar, Eng 101	14 credits
Spring:	Biol 112, Chem 104, Math 140 (or lower level Math course), Eng 102	15 credits
Year 2 Fall:	Biol 212, Chem 253, Math 141, Physics 113, Physics 181	15 credits
Spring:	Biol 254, Chem 254, Physics 114, Physics 182, Intermediate Seminar	14 credits
Year 3 Fall:	Biochem 383, Biochem 385, Chem 311 & 313, Distribution course	14 credits
Spring:	Biochem 384, Biochem 386, Chem 312, 2 Distribution courses	15 credits
Year 4 Fall:	Biochem 491/Bio 478/Chem 481/Chem 491, Distribution course, electives	16 credits
Spring:	Biochem 492/Bio 479/Chem 482/Chem 492, Biol 372, Distribution course, electives	17 credits

**Note: for more information see one of the following biochemistry faculty:**

Dr. Steven Ackerman, Biology (Program Director, W-3-031, phone 287-6682); Dr. William Hagar, Biology (M-3-313, phone 287-6669); Dr. Wayne Pitcher, Chemistry (S-1-128, phone 287-6147), Dr. Manickam Sugumaran, Biology (W-4-074, phone 287-6598); Dr. John Warner, Chemistry (S-1-120, phone 287-6165).