BS in Chemistry

Bachelor of Science in Chemistry

~~**This is the first professional degree in chemistry.** It~~ This degree may be taken as a terminal degree by students intending to become professional chemists or for preparation for graduate work in chemistry or biochemistry. Students may choose to specialize in chemistry or biochemistry.

Chemistry Option

Candidates must complete the requirements for the B.A. degree in chemistry. In addition, the following chemistry courses are required:

CHEM 3643	Advanced Organic Chemistry Laboratory	2
CHEM 4212	Instrumental Analysis	3
CHEM 4233	Laboratory in Instrumental Analysis	2
CHEM 4343	Physical Chemistry Laboratory II	2
CHEM 4412	Advanced Inorganic Chemistry	3
CHEM 4433	Inorganic Chemistry Laboratory	2
CHEM 4612	Introduction to Macromolecular, Supramolecular, and Nanoscale Chemistry	1
CHEM 4712	Biochemistry	3
Total Hours		~~17~~ **18**

Students must also take two elective hours of advanced work in chemistry at the 3000 level or above. Students are encouraged to take CHEM 3905, Chemical Research, to fulfill the advanced elective requirement.

Biochemistry Option

Candidates must complete the requirements for the B. A. degree in chemistry. In addition, the following chemistry and biology courses are required:

Chemistry		
CHEM 3643	Advanced Organic Chemistry Laboratory	2
CHEM 4212	Instrumental Analysis	~~2~~ 3
CHEM 4233	Laboratory in Instrumental Analysis	2
CHEM 4612	Introduction to Macromolecular, Supramolecular, and Nanoscale Chemistry	1
CHEM 4712	Biochemistry	3
CHEM 4722	Advanced Biochemistry	3
CHEM 4733	Biochemistry Laboratory	2
Select one of the following:		3
CHEM 4772	Physical Biochemistry	
CHEM 3905	Chemical Research (3 credits)	
BIOL 4905	Research (3 credits)	
Biology		
BIOL 1831	Introductory Biology: From Molecules to Organisms (MOTR BIOL 150L)	5
BIOL 2012	Genetics	3
BIOL 3622	Cell Biology	3

Total Hours	~~28~~ 30

If either research option is chosen, the project must be in biochemistry and must include a written final report submitted to the Department of Chemistry and Biochemistry.

Fifty-one hours of chemistry courses may be applied toward the degree. At least 24 hours of chemistry at the 3xxx level or higher must be completed at UMSL. Each chemistry major candidate must present a seminar and pass a comprehensive examination during the senior year.

Sign-offs from other departments affected by this proposal	
None	
Rationale	The new course will fulfill the American Chemical Society Macromolecular, Supramolecular, and Nanoscale (MSN) Systems in the Curriculum requirement introduced in 2015. According to the guidelines, it is expected that “students be exposed to MSN content covering three broad areas 1) structure, synthesis and/or preparation, 2) characterization, and 3) physical properties. Coverage of at least two types of MSN systems, such as synthetic polymers, biological macromolecules, supra-molecular aggregates, and meso- or nanoscale materials is required. The description proposed below is based on these guidelines. Fulfilling the new requirement will be important for our continued ACS accreditation of the BS degree.