

# The University Senate of Michigan Technological University

## Proposal

(Voting Units: Academic)

### Proposal for a Bachelor of Arts Degree in Chemistry

- A. **Current Date:** April 12, 2020
- B. **Contact:** Martin Thompson, [thompson@mtu.edu](mailto:thompson@mtu.edu), Department of Chemistry
- C. **Interdisciplinary programs require an attached approval from each department and dean named as sponsors:** Not applicable.
- D. **General Description and Characteristics of the Program, Including Learning Goals**

#### 1. Description

The Bachelor of Arts in Chemistry will provide students with a firm and broadly-based foundation in chemistry, and the flexibility to pursue other educational objectives, such as in law, business, any of the pre-health pathways, or specializing in a minor area of study in another discipline such as biochemistry, biology, business, computer science, and many others.

#### 2. Characteristics

The Bachelor of Arts in Chemistry will require a total of 120 credits for graduation, based on the following degree requirements:

- i. 57 Credits of Major Requirements
  - 45 Credits of Chemistry, including 9 credits of chemistry electives
  - 12 Credits of Mathematics and Physics
- ii. 24 Credits of General Education (non-STEM)
- iii. 39 Credits of Free Electives

#### 3. Learning Goals

We expect that all chemistry majors will finish their program of study as well-rounded critical thinkers and lifelong learners. Graduates from this program will be able to:

- Articulate foundational theoretical and experimental knowledge in basic, organic and physical chemistry, and in quantitative and instrumental analytical methods.
- Work safely in a laboratory to collect, analyze and evaluate experimental data.
- Use scientific literature relevant to critical evaluation of a scientific question, to research, and to solve problems.
- Communicate scientific ideas to general and scientific audiences using both oral and written methods.
- Demonstrate proficiency in the societal and environmental implications of chemistry as a discipline, and professional responsibilities as an ethical chemist.

- Compete for and perform in graduate study or professional work in chemistry, education, or other chosen professional fields such as health professions, law, business, etc.

See curriculum design in Section I.

**E. Title of program:** Bachelor of Arts Degree in Chemistry

**F. Rationale**

The Bachelor of Arts degree program is an attractive and accessible pre-professional degree that provides students with a broader, more flexible program of study than our nationally certified Bachelor of Science degree program. Students interested in secondary education and professional programs will benefit from having a solid foundation in chemistry. This flexibility will allow students to select courses to their particular career interests and take classes in another discipline more easily, while still graduating in four years when entering with appropriate mathematical preparation. The Bachelor of Arts program can be tailored in pursuit of professional paths such as teacher certification, pre-law, technical writer, business and sales, pre-medicine, pre-dentistry, pre-veterinary, physical therapy, criminology, and other applied science careers. The additional flexibility in both professional-path choices and scheduling may also attract more transfer students from community colleges.

This degree program supports the goals of Michigan Tech's strategic plan by potentially increasing student enrollment and retention, improving graduation rates in Chemistry by providing students with an alternative to the Bachelor of Science degree without significantly extending the time to completion.

**G. Related programs**

There is no BA in Chemistry at Michigan Tech University, but multiple BA programs are already available (Physics, Psychology, Theatre and Entertainment, History, Communication, Culture, and Media, Scientific and Technical Communication, English, Theatre and Electronic Media Performance, Sound Design, etc.). The most closely related program at MTU is our BS in chemistry, which is certified by the American Chemical Society. This degree requires a higher level of mathematics preparation and significantly more chemistry courses than are necessary for students seeking pathways leading to professions noted in Section F above. The BA in Physics is also structurally similar, with a minimum of 60 credits of major requirements (including 15 credits of physics electives), up to 40 credits of free electives, and 124 credits total.

There are almost as many BA Chemistry programs at other institutions in the United States as there are chemistry degree programs. Program requirements for benchmarked programs around the U.S. are linked below.

[Brigham Young University](#)

[Case Western Reserve University](#)

[Michigan State University Chemistry \(Includes BA/BS Comparison\)](#)

[Oakland University](#)

[Rice University](#)

[State University of New York - Buffalo](#)



[University of Missouri - Kansas City](#)  
[University of Rochester](#)  
[University of Virginia](#)  
[University of Washington](#)  
[York College, City University of New York](#)

## **H. Projected Student Enrollment**

Based on the introduction of our pharmaceutical degree and biochemistry and molecular biology degree programs, and discussions with the pre-health advisor, we expect 15 students to be added to our undergraduate enrollment over the course of the first three years. It is difficult to say how many students will transfer into the BA in Chemistry program from the BS or other department programs, and therefore we are not factoring that aspect into the estimates of 'new growth' in students.

## I. Curriculum design:

<b>Major Requirements</b>	<b>Credits</b>
CH 1130 PDFC 1: Orientation	1
CH 1150 University Chemistry I	3
CH 1151 University Chemistry I Lab	1
CH 1153 University Chemistry I Recitation	1
CH 1160 University Chemistry II	3
CH 1161 University Chemistry II Lab	1
CH 1163 University Chemistry II Recitation	1
CH 2130 PDFC 2: Career Planning	2
CH 2212 Quantitative Analysis	5
CH 2411 Organic Chemistry I Lab	1
CH 2421 Organic Chemistry II Lab	2
CH 2430 Mechanistic Organic Chemistry	3
CH 2440 Synthetic Organic Chemistry	3
CH 3130 PDFC 3: Communication	1
CH 3515 Principles of Physical Chemistry	3
CH 4130 PDFC 4: Senior Seminar	2
CH 4710 Biomolecular Chemistry I	3
CH (Major electives in CH)	9 (minimum 6 cr 3000-level or higher)
PH 1110 College Physics 1*	3
PH 1111 College Physics I Lab*	1
PH 1200 Physics by Inquiry II	1
PH 1210 College Physics II*	3
MA 1160 Calculus with Technology I	4
<b>Major Requirements Subtotal</b>	<b>57</b>
<b>General Education Requirements (non-STEM)</b>	
UN 1015 Composition	3
UN 1025 Global Issues	3
Gen Ed Core: Critical and Creative Thinking	3
Gen Ed Core: Social Responsibility	3
General Education Hass	12
<b>General Education Subtotal</b>	<b>24</b>
<b>Free Electives</b>	<b>39</b>
<b>Program Total</b>	<b>120</b>

\*College Physics sequence may be substituted with University Physics sequence if deemed appropriate for the student's chosen pathway. Additional prerequisite courses beyond those explicitly shown here would be required. Interested students should coordinate with their academic advisor.

See Appendix B for a sample four-year schedule.

Recommended courses for sample pathways are shown in Appendix D.

## J. New Course Description

### CH 3515 Principles of Physical Chemistry

This algebra-based approach to physical chemistry examines foundational topics in thermodynamics, chemical equilibrium, chemical kinetics, atomic and molecular spectroscopy and structure, the periodic table, and elements of quantum mechanics.

**Credits:** 3

**Lec-Rec-Lab:** (3-0-0)

**Semesters Offered:** Fall

**Pre-Requisite:** CH 1122 or (CH 1160 and CH 1161) and MA1160 and (PH 1210(C) or PH2200 (C))

**K. Model schedule demonstrating completion time:** See Appendix B

**L. Library and other learning resources:** No additional material required or requested.

**M. Description of available/needed equipment and space:** No additional equipment required or requested. No additional space required or requested.

## N. Program costs

Current faculty resources are projected to support enrollment growth surpassing 100 students. The program's required courses are already offered except for CH3515, which was offered in the past but is not currently in the catalog. It is widely understood that a room that holds 40 students, yet has 20 enrolled can fit 20 more students without changing costs much. This does translate into increased time as it takes a faculty member to prepare grade papers, exams, and content and knowledge delivery mechanisms. Advising time will increase with more students. See also Appendix C.

**O. Accreditation requirements:** Not applicable.

**P. Planned implementation:** Fall 2021

Approved by Dept. of Chemistry faculty: April 21, 2020

Approved by CSA Dean:

Approved by Dean's Council:

Approved by the University Senate:

Approved by Provost:

## **Appendix A: Additional requirements for new degree programs**

### **1. Program-specific policies, regulations, and rules**

The program adheres to all existing university policies, regulations, and rules. There are no program-specific policies, regulations, and rules.

### **2. Scheduling plans**

Standard

### **3. Space**

The Department of Chemistry is located in the ageing Chemical Sciences and Engineering Building (19). There is currently classroom and laboratory space for classes, labs, computing equipment, and faculty offices. Space is sufficient to meet the needs of this program.

### **4. Faculty resumes**

See the following link: <https://www.mtu.edu/chemistry/people-groups/faculty-staff/>

### **5. Information required for financial review**

See Appendix C.

## Appendix B. B.A. Sample Four-Year Plan

<b>First-Year Fall</b>	<b>Credits</b>
CH 1150 University Chemistry I	3
CH 1151 University Chemistry I Lab	1
CH 1153 Univ. Chemistry I Recitation	1
CH 1130 PDFC 1: Orientation	1
PH 1110 College Physics I*	3
PH 1111 College Physics I Lab*	1
UN 1015 Composition	3
<b>Total Credits</b>	<b>13</b>

<b>First-Year Spring</b>	<b>Credits</b>
CH 1160 University Chemistry II	3
CH 1161 University Chemistry II Lab	1
CH 1163 Univ. Chemistry II Recitation	1
PH 1200 Physics by Inquiry II	1
PH 1210 College Physics II*	3
UN 1025 Global Issues	3
Free Electives	3
<b>Total Credits</b>	<b>15</b>

<b>Second-Year Fall</b>	<b>Credits</b>
CH 2130 PDFC 2: Career Planning	2
CH 2430 Mechanistic Organic Chem	3
CH 2411 Organic Chemistry I Lab	1
MA 1160 Calculus I with Technology	4
Core: Critical and Creative Thinking	3
Free or Chemistry Electives	3
<b>Total Credits</b>	<b>16</b>

<b>Second-Year Spring</b>	<b>Credits</b>
CH 2212 Quantitative Analysis	5
CH 2440 Synthetic Organic Chemistry	3
CH 2421 Organic Chemistry II Lab	2
Core: Social Resp. & Eth. Reasoning	3
Free or Chemistry Electives	3
<b>Total Credits</b>	<b>16</b>

<b>Third-Year Fall</b>	<b>Credits</b>
CH 3515 Principles of Physical Chem	3
General Education HASS Requirement	3
Free or Chemistry Electives	9
<b>Total Credits</b>	<b>15</b>

<b>Third-Year Spring</b>	<b>Credits</b>
CH 3130 PDFC 3: Communication	1
General Education HASS Requirement	3
Free or Chemistry Electives	12
<b>Total Credits</b>	<b>16</b>

<b>Fourth-Year Fall</b>	<b>Credits</b>
CH 4710 Biomolecular Chemistry 1	3
General Education HASS Requirement	3
Free or Chemistry Electives	9
<b>Total Credits</b>	<b>15</b>

<b>Fourth-Year Spring</b>	<b>Credits</b>
CH 4130 PDFC 4: Senior Seminar	2
General Education HASS Requirement	3
Free or Chemistry Electives	9
<b>Total Credits</b>	<b>14</b>

\*College Physics sequence may be substituted with University Physics sequence if deemed appropriate for the student's chosen pathway. Additional prerequisite courses beyond those explicitly shown here would be required. Interested students should coordinate with their academic advisor.



## Appendix C: Criteria for Financial Evaluation of Proposed Academic Programs

### 1. Relation to University Strategic Plan

#### a. Relation of the program to the university's educational and research goals.

The proposed program supports the education goal of the University Strategic Plan, “Provide a distinctive and rigorous action-based learning experience grounded in science, engineering, technology, business, sustainability, and an understanding of the social and cultural contexts of our contemporary world.” More specifically, the new program supports student learning by developing an opportunity for students to create tailored, interdisciplinary academic experiences, and by expanding “programs in response to social and economic needs and challenges.”

#### b. Consistency with the university's resource allocation criteria.

The proposed program should support the university budget in several ways. First, it is intended to attract new students to the university. Second, the program plays well with several existing programs, such as pre-health, pre-law, etc. Third, the new degree can be offered at negligible additional cost by building on top of the existing programs and resources.

### 2. Impact on University Enrollment

#### a. Projected number of students in the program.

We recognize that the new degree program will enter a market established 100 years ago in some cases, with fierce competition. We project a conservative enrollment of 10-15 new students for the first three years.

#### b. Source of new students; in particular, will the students be drawn from existing programs, or will they be students who would otherwise not have come to Tech?

Based on the study of national trends and related programs in Michigan and the surrounding states, it is expected that the program will attract new students to Michigan Tech.

Meanwhile, we anticipate that some students may transfer from other science and pre-professional programs. These are usually students with strong interest in chemistry, but who previously may not have majored in chemistry given the available chemistry degree programs and their career goals. The proposed new major would help retain these students at Michigan Tech by providing them with additional options. For example, with the liberation of many credits of major requirements, students can customize their chemistry degree with business, law, health or other courses that can apply chemistry in flexible and unique student-centered ways.

**c. What is the likely correlation between demand for the new program and existing enrollment patterns at Michigan Tech?**

This program is in a stable discipline. Prospective students like the idea of a degree in Chemistry that avoids the obstacles to learning chemistry (which based on student feedback are not even chemistry courses, i.e. Differential Equations, Calculus, etc.) and allows students to tailor their degrees to other applicable areas. Therefore, it is reasonable to predict that the enrollment will continue to grow.

**d. What is the current enrollment in the unit?**

In Fall 2020, there were 75 undergraduates in the four chemistry degree programs.

**3. Assessment.**

This program will be assessed as part of the ongoing University assessment program. All of the University learning goals will be addressed by one or more classes in the proposed program. Courses that are outside of the general education requirements will address disciplinary knowledge as well as other university learning goals. Assessment of this program will be conducted by individual faculty and the undergraduate programs committee in the Department of Chemistry, alongside the existing departmental degree programs to ensure the 8 learning goals set forth by the provost office are planned, implemented and used to improve the program. Details are available for existing degree programs can be found: <https://sites.google.com/a/mtu.edu/degree-program-annual-reports/college-of-sciences-and-arts>

These curricular maps will be developed for the new degree program over the course of the 202-21 academic year for implementation at the same time the degree is expected to be offered in Fall of 2021. It should be noted that the ACS does not certify non-BS degrees. This will need to be done through another external entity. We are currently discussing how to accomplish this goal for all of our non-ACS certified degrees. Therefore, we will have a plan implemented prior to offering this degree program at the aforementioned date.

**4. Discuss impact on resources required by the department in which the program is housed.**

**a. Faculty lines.**

No new faculty are requested. The increased time to teach and advise new students will be absorbed by the department by filling classrooms already below capacity.

**b. Faculty and student labs, including ongoing maintenance.**

Existing chemistry labs, including equipment, bench space, and classroom seat availability, are adequate to support the program.

**c. Advising**

The current resources for advising within the Department of Chemistry will be adequate.

**d. Assessment**

Additional assessment time is difficult to determine precisely because this program will need to be assessed internally and externally. The minimum time for internal audits of the learning goals is 20-30 hours per semester. This includes individual and committee time dedicated to developing assessment plans, collecting data for discussion and the final analysis.

Additionally, “closing the loop” to continually improve our program. Courses that overlap with the other degree programs in chemistry will be completed and reported collectively whenever possible to efficiently report. This additional time effort overlapping with our other degree programs is difficult to quantify considering so much time from so many faculty members will be involved. But it is no more or less a burden than any department encounters to fulfill our assessment and accreditation requirements.

**5. Discuss impact on resources required by other units within the university.**

**a. Impact on other classes**

The program coursework consists of existing courses from the chemistry degree program. We expect that the capacity within the department is adequate to serve the students in the new major. Due to our current enrollment being at a 10-year low, a significant increase in enrollment increase over the next few years is not expected to cause scheduling or overcrowding problems. Recruiting initiatives began last year to increase enrollment back to prior norms of about 100 undergraduates in chemistry majors.

**b. Has the department initiated any other new degree programs in the last five years?**

No.

**c. How do the benefits from this program compare to other alternatives that are currently under consideration or development?**

There are no alternatives under consideration or development.

**6. Discussion on departmental budget contribution**

No new budget contributions are necessary from the department.

**Appendix D - Sample Pathways with Recommended Courses**

## Pre-Chiropractic

### Included in Major Requirements

CH 1150 University Chemistry I  
CH 1151 University Chemistry I Lab  
CH 1160 University Chemistry II  
CH 1161 University Chemistry II Lab  
CH 2430 Mechanistic Organic Chemistry  
CH 2411 Organic Chemistry I Lab  
CH 2440 Synthetic Organic Chemistry  
CH 2421 Organic Chemistry II Lab  
CH 4710 Biomolecular Chemistry I  
PH 1110 College Physics I  
PH 1111 College Physics I Laboratory  
PH 1200 Physics by Inquiry II  
PH 1210 College Physics II  
1 Semester of Calculus

### General Education Core and HASS Allocations

HU 3015 Advanced Composition or HU 2503 Introduction to Literature  
One Additional Humanities Course (Recommended - HU 3400 Topics in Diversity Studies)  
PSY 2000 Introduction to Psychology  
SS 2700 Introduction to Sociology

### Free Elective Allocations

	Credits
BL 2010 Anatomy & Physiology	3
BL 2011 Anatomy & Physiology I Lab	1
BL 2020 Anatomy & Physiology II	3
BL 2021 Anatomy & Physiology II Lab	1
KIP 1500 Essentials of Kinesiology	3
KIP 4100 Exercise Physiology	3
KIP 4110 Exercise Physiology Laboratory	1
KIP 4200 Biomechanics of Human Movement	3
KIP 4210 Biomechanics of Human Movement Lab	1
BL 1010 General Biology I	4
BL 1020 General Biology II	4
MA 2720 Statistical Methods or MA 3715 Biostatistics	3-4
<b>Total Free Elective Credits Used</b>	<b>30-31</b>

## Pre-Dental

### Included in Major Requirements

CH 1150 University Chemistry I  
CH 1151 University Chemistry I Lab  
CH 1160 University Chemistry II  
CH 1161 University Chemistry II Lab  
CH 2430 Mechanistic Organic Chemistry  
CH 2411 Organic Chemistry I Lab  
CH 2440 Synthetic Organic Chemistry  
CH 2421 Organic Chemistry II Lab  
CH 4710 Biomolecular Chemistry I  
CH 4720 Biomolecular Chemistry II  
PH 1110 College Physics I  
PH 1111 College Physics I Laboratory  
PH 1200 Physics by Inquiry II  
PH 1210 College Physics II

### General Education Core and HASS Allocations

HU 3015 Advanced Composition or HU 2503 Introduction to Literature  
PSY 2000 Introduction to Psychology  
SS 2700 Introduction to Sociology

### Free Elective Allocations

	Credits
BL 2010 Anatomy & Physiology	3
BL 2011 Anatomy & Physiology I Lab	1
BL 2020 Anatomy & Physiology II	3
BL 2021 Anatomy & Physiology II Lab	1
BL 1010 General Biology I	4
BL 1020 General Biology II	4
BL 2200 Genetics	3
BL 2210 Genetics Laboratory	1
BL 3012 Essential Cell Biology	3
BL 3210 Microbiology	4
MA 2720 Statistical Methods or MA 3715 Biostatistics	3-4
<b>Total Free Elective Credits Used</b>	<b>30-31</b>

## Pre-Medical

### Included in Major Requirements

CH 1150 University Chemistry I  
CH 1151 University Chemistry I Lab  
CH 1160 University Chemistry II  
CH 1161 University Chemistry II Lab  
CH 2430 Mechanistic Organic Chemistry  
CH 2411 Organic Chemistry I Lab  
CH 2440 Synthetic Organic Chemistry  
CH 2421 Organic Chemistry II Lab  
CH 4710 Biomolecular Chemistry I  
CH 4720 Biomolecular Chemistry II  
PH 1110 College Physics I  
PH 1111 College Physics I Laboratory  
PH 1200 Physics by Inquiry II  
PH 1210 College Physics II

### General Education Core and HASS Allocations

HU 3015 Advanced Composition or HU 2503 Introduction to Literature  
PSY 2000 Introduction to Psychology  
SS 2700 Introduction to Sociology

### Free Elective Allocations

	Credits
BL 2010 Anatomy & Physiology	3
BL 2011 Anatomy & Physiology I Lab	1
BL 2020 Anatomy & Physiology II	3
BL 2021 Anatomy & Physiology II Lab	1
BL 1010 General Biology I	4
BL 1020 General Biology II	4
BL 2200 Genetics	3
BL 2210 Genetics Laboratory	1
BL 3012 Essential Cell Biology	3
BL 3210 Microbiology	4
BL 3640 General Immunology	3
MA 2720 Statistical Methods or MA 3715 Biostatistics	3-4
<b>Total Free Elective Credits Used</b>	<b>33-34</b>

## Pre-Optometry

### Included in Major Requirements

CH 1150 University Chemistry I  
CH 1151 University Chemistry I Lab  
CH 1160 University Chemistry II  
CH 1161 University Chemistry II Lab  
CH 2430 Mechanistic Organic Chemistry  
CH 2411 Organic Chemistry I Lab  
CH 2440 Synthetic Organic Chemistry  
CH 2421 Organic Chemistry II Lab  
CH 4710 Biomolecular Chemistry I  
PH 1110 College Physics I  
PH 1111 College Physics I Laboratory  
PH 1200 Physics by Inquiry II  
PH 1210 College Physics II  
1 Semester of Calculus

### General Education Core and HASS Allocations

HU 3015 Advanced Composition or HU 2503 Introduction to Literature

### Free Elective Allocations

	Credits
BL 2010 Anatomy & Physiology	3
BL 2011 Anatomy & Physiology I Lab	1
BL 2020 Anatomy & Physiology II	3
BL 2021 Anatomy & Physiology II Lab	1
BL 1010 General Biology I	4
BL 1020 General Biology II	4
B: 3210 Microbiology	3
<b>Total Free Elective Credits Used</b>	<b>19</b>

## Pre-Pharmacy

### Included in Major Requirements

CH 1150 University Chemistry I  
CH 1151 University Chemistry I Lab  
CH 1160 University Chemistry II  
CH 1161 University Chemistry II Lab  
CH 2430 Mechanistic Organic Chemistry  
CH 2411 Organic Chemistry I Lab  
CH 2440 Synthetic Organic Chemistry  
CH 2421 Organic Chemistry II Lab  
CH 4710 Biomolecular Chemistry I  
PH 1110 College Physics I  
PH 1111 College Physics I Laboratory  
PH 1200 Physics by Inquiry II  
PH 1210 College Physics II  
1 Semester of Calculus

### General Education Core and HASS Allocations

HU 3015 Advanced Composition or HU 2503 Introduction to Literature  
HU 2830 Public Speaking & Multimedia  
HU 3820 Interpersonal Communication  
PSY 2000 Introduction to Psychology  
SS 2700 Introduction to Sociology

### Free Elective Allocations

	<b>Credits</b>
BL 2010 Anatomy & Physiology	3
BL 2011 Anatomy & Physiology I Lab	1
BL 2020 Anatomy & Physiology II	3
BL 2021 Anatomy & Physiology II Lab	1
BL 1010 General Biology I	4
BL 1020 General Biology II	4
BL 2200 Genetics	3
BL 2210 Genetics Laboratory	1
BL 3210 Microbiology	4
MA 2720 Statistical Methods                      OR	4
MA 3715 Biostatistics	3
EC 2001 Principles of Economics	3
HU Elective (Rec. HU 3400 Topics in Diversity Studies)	3
<b>Total Free Elective Credits Used</b>	<b>37</b>



**Pre-Law**

*Minor in Law and Society*

**General Education Core and HASS Allocations**

HU 3015 Advanced Composition  
HU 2830 Public Speaking and Multimedia  
SS 2610 Introduction to Law and Society  
SS 3640 Selected Topics in Cyber Law  
SS 3660 Constitutional Law

**Free Elective Allocations**

**Credits**

SS 1002 Introduction to Law and Legal Practices	3
SS 2610 Introduction to Law and Society	3
SS 3610 International Law	3
SS 3661 Civil Rights and Civil Liberties	3
SS 3665 Crime, Incarceration, and Policy	3
SS 3910 Histories and Cultures	3
SS 3960 Cultural Immersion	3
SS 4921 Washington Internship	3
HU 2840 Interpersonal Communication	3
HU 3261 Topics in Communicating Across Cultures	3
HU 3400 Topics in Diversity Studies	3
PSY 2000 Introduction to Psychology	3
PSY 3070 Cross Cultural Psychology	3
<b>Total Free Elective Credits Used</b>	<b>39</b>

## **Business and Entrepreneurship**

*Minor in Business or Global Business*

### **General Education Core and HASS Allocations**

HU 3015 Advanced Composition

HU 2830 Public Speaking and Multimedia

EC 2001 Principles of Economics

### **Free Elective Allocations**

BUS 1100 Introduction to Business

BUS 2200 Business Law

FIN 2400 Finance Literacy

FIN 3000 Principles of Finance

MGT 2000 Team Dynamics and Decision Making

MGT 3000 Organizational Behavior

MGT 3800 Entrepreneurship

MKT 3000 Principles of Marketing

MKT 3200 Consumer Behavior

### **Credits**

3

3

3

3

3

3

3

3

3

**Total Free Elective Credits Used**

**27**

**Business and Entrepreneurship**

*Minor in Business or Global Business*

**General Education Core and HASS Allocations**

HU 3015 Advanced Composition

HU 2830 Public Speaking and Multimedia

EC 2001 Principles of Economics

**Free Elective Allocations**

**Credits**

BUS 1100 Introduction to Business

3

BUS 2200 Business Law

3

FIN 2400 Finance Literacy

3

FIN 3000 Principles of Finance

3

MGT 2000 Team Dynamics and Decision Making

3

MGT 3000 Organizational Behavior

3

MGT 3800 Entrepreneurship

3

MKT 3000 Principles of Marketing

3

MKT 3200 Consumer Behavior

3

**Total Free Elective Credits Used**

**27**

**Science Writing / Technical Writing**

*Minor in Writing*

**General Education Core and HASS Allocations**

HU 3015 Advanced Composition

HU 3120 Technical and Professional Communication

HU 3693 Science Writing

**Free Elective Allocations**

HU 2130 Introduction to Rhetoric

HU 3151 Rhetoric of Everyday Texts

HU 3605 Grammar and Usage in Society

HU 3694 Grant Writing

HU 3695 Digital Writing and Rhetoric

HU 4625 Risk Communication

HU 4626 International Technical Communication

HU 4690 Special Topics in Technical & Professional Comm.

**Credits**

3

3

3

3

3

3

3

3

**Total Free Elective Credits Used**

**24**