



**Minutes of the Campus Curricula Committee Meeting**

**May 3, 2022**

**8:15am, Bertelsmeyer 110H**

**(For Faculty Senate Meeting of June 9, 2022)**

**Attendees:** Steve Raper, Petra Dewitt, Katie Shannon, Michael Davis, Kyle Perry, Cecil Eng Huang Chua, Evie Sherlock, Marita Raper

The following curriculum forms were discussed and approved:

**Course Change Forms:**

File: 4779.1 BIO SCI 5393 : Immunology  
File: 140.1 BIO SCI 5493 : General Virology  
File: 1633.2 CHEM 5220 : Physical Organic Chemistry  
File: 1040.14 CHEM ENG 2100 : Chemical Engineering Material & Energy Balances  
File: 2041.4 CHEM ENG 2110 : Chemical Engineering Thermodynamics I  
File: 4280.9 CHEM ENG 3101 : Fundamentals of Transport in Chemical and Biochemical Engineering  
File: 4279.27 CHEM ENG 3111 : Numerical Computing in Chemical and Biochemical Engineering  
File: 436.6 CHEM ENG 3120 : Chemical Engineering Thermodynamics II  
File: 4282.14 CHEM ENG 3131 : Separations in Chemical and Biochemical Engineering  
File: 4281.9 CHEM ENG 3141 : Process Operations in Chemical and Biochemical Engineering  
File: 1038.12 CHEM ENG 3150 : Chemical Engineering Reactor Design  
File: 4285.18 CHEM ENG 4091 : Chemical Process Design I  
File: 4290.6 CHEM ENG 5250 : Isolation and Purification of Biologicals  
File: 4269 COMP SCI 5701 : Experiential Entrepreneurship for Computer Scientists  
File: 502.1 ECON 4430 : Cost-Benefit Analysis  
File: 1714.1 LATIN 2001 : Special Topics  
File: 4872 STAT 4210 : Introduction to Statistical Data Science

**Program Change Forms:**

File: 142.58 AP MATH-BS : Applied Mathematics BS  
File: 146.32 BIO SC-BA : Biological Sciences BA  
File: 147.20 BIO SC-BS : Biological Sciences BS  
File: 16.36 CHEM-BS : Chemistry BS  
File: 28.67 CMP SC-BS : Computer Science BS  
File: 344.27 EDUC-BS : Education BS

File: 374.13 ENGL TC-BS : English & Technical Communication BS  
File: 156.66 GE ENG-BS : Geological Engineering BS  
File: 234.28 INORGPS-MS : Industrial Organizational Psychology MS  
File: 95.32 MI ENG-BS : Mining Engineering BS  
File: 188.10 PHILTCH-MI : Philosophy of Technology Minor  
File: 121.7 PRE LAW-MI : Pre Law Minor  
File: 123.9 PRE-MED-MI : Pre-Medicine Minor  
File: 377.7 PROPOSED : Biological Sciences BS with Emphasis area in Medical Laboratory Scientist  
File: 390 PROPOSED : Human Factors Psychology CT  
File: 305.8 PSYMTRP-CT : Statistical Methods Psych CT  
File: 345.8 WATERSC-MS : Water Science and Engineering MS  
File: 304.13 WORKPSY-CT : Applied Workplace Psych CT

**Experimental Course forms:**

File: 4871 ART 2001.001 : Marvel Cinematic University – Media, Culture, and Philosophy via the Superhero  
File: 4794 CHEM ENG 5001.015 : Colloid Chemistry and Interfacial Engineering  
File: 4870 COMP ENG 4001.001 : Practicum in Computer Engineering  
File: 4869 ELEC ENG 4001.001 : Practicum in Electrical Engineering  
File: 4873 TCH COM 3001.002 : Video Design and Editing

The meeting adjourned at 8:45 am.



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Stephen A. Raper, Chair  
Missouri S&T Campus Curricula Committee

# Course Change Request

Date Submitted: 03/25/22 10:29 am

Viewing: **BIO SCI 5393 ~~4393~~ : Immunology**

File: 4779.1

Last approved: 04/26/21 6:01 am

Last edit: 03/25/22 12:25 pm

Changes proposed by: shannonk

Requested	<u>Spring 2023</u> <del>Fall 2021</del>
Effective Change	
Date	
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	<u>5393</u> <del>4393</del>
Title	

## In Workflow

1. **RBIOLSCI Chair**
2. **CCC Secretary**
3. **Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

## Approval Path

1. 03/25/22 10:35 am  
David Duvernell (duverneld):  
Approved for  
RBIOLSCI Chair
2. 03/25/22 12:25 pm  
Marita Raper

(tibbettsmg):  
Approved for CCC  
Secretary

3. 04/08/22 10:32  
am

Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC  
Chair

4. 04/20/22 2:54 pm

Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post

5. 05/03/22 9:36 am

Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda

6. 05/03/22 9:38 am

Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Apr 26, 2021 by  
Katie Shannon  
(shannonk)

Abbreviated Immunology  
Course Title

Catalog

Description

Introduction to the immune system, and the role of immunology in diseases and treatments. Major topics include the development of the immune system, including T cell and B cell development, innate and adaptive immunity, autoimmunity and tumor immunology.

Prerequisites

Bio Sci 2213 and Bio Sci 2223; Bio Sci 3313 is recommended.

Field Trip

Statement

none

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Required for

No

Majors

Elective for

Yes

Majors

Justification for  
change:

Immunology (Bio Sci 4393) is currently listed as an advanced undergraduate course but taught in a way similar to a graduate-level course having students engaged in literature review and case studies. We would like to change it to a 5000-level course so this course can also be available to graduate students, which can help grow the graduate program in Biology and related disciplines.

Semesters

previously  
offered as an  
experimental  
course

Taught Fall 2020 as BIO SCI 4001.005

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (03/25/22 12:25 pm):** updated term to Spring 23. MR

Key: 4779

[Preview Bridge](#)

# Course Change Request

Date Submitted: 03/25/22 10:31 am

Viewing: **BIO SCI 5493 ~~4493~~ : General Virology**

File: 140.1

Last edit: 05/03/22 9:36 am

Changes proposed by: shannonk

Requested	<u>Spring 2023</u> <del>Fall 2014</del>
Effective Change	
Date	
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	<u>5493</u> <del>4493</del>
Title	

## In Workflow

1. **RBIOLSCI Chair**
2. **CCC Secretary**
3. **Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

## Approval Path

1. 03/25/22 10:35 am  
David Duvernell (duvernell):  
Approved for  
RBIOLSCI Chair
2. 03/25/22 12:28 pm  
Marita Raper

- (tibbettsmg):  
Approved for CCC  
Secretary
3. 04/08/22 10:32  
am  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC  
Chair
4. 04/20/22 2:55 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:36 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
6. 05/03/22 9:37 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

## General Virology

Abbreviated Course Title      General Virology

### Catalog

#### Description

An overview of the field of virology, including plant, animal, and bacterial viruses.

Discussions will include morphology, classification, virus-host interactions, genetics, clinical and industrial aspects of viruses, and viruses as model systems for basic biological studies.

#### Prerequisites

Bio Sci 1113 or [Bio Sci 1213](#); [Bio Sci 2213 or Bio Sci ~~Bio Sci 2213~~](#), 3313, Chem 1310, [Chem 1320](#), [Chem 2210](#).

#### Field Trip

#### Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
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Total: 3

Required for	No
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Majors

Elective for	<a href="#">Yes</a> <del>No</del>
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Majors

#### Justification for

change:

General Virology is an advanced undergraduate course and taught in a manner similar to a graduate level course with students engaged in the current literature and case studies. To support growing our biology and related graduate programs while continuing to make the course available to undergraduates we would like to offer the course as Bio Sci 5493

#### Semesters

previously

offered as an

experimental

course

#### Co-Listed

Courses:

Course Reviewer

## Comments

**tibbettsmg (03/25/22 12:27 pm):** updated prereq formatting and term to Spring 23.

MR

Key: 140

[Preview Bridge](#)

# Course Change Request

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Date Submitted: 04/11/22 12:39 pm

Viewing: **CHEM 5220 : Physical Synthetic**

## Organic Chemistry

File: 1633.2

Last approved: 04/11/22 11:23 am

Last edit: 05/03/22 9:37 am

Changes proposed by: tschuman

Requested Spring 2023 ~~Fall 18 Prereq~~

Effective Change ~~Attribute Update~~

Date

Department Chemistry

Discipline Chemistry (CHEM)

Course Number 5220

Title

### In Workflow

1. RCHEMIST Chair
2. CCC Secretary
3. Sciences DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

### Approval Path

1. 04/12/22 8:20 am  
Rainer Glaser  
(GlaserR):  
Approved for  
RCHEMIST Chair
2. 04/13/22 2:05 pm  
Marita Raper  
(tibbettsmg):  
Approved for CCC

Secretary

3. 04/22/22 10:17  
am

Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC  
Chair

4. 04/22/22 2:18 pm

Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post

5. 05/03/22 9:37 am

Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda

6. 05/03/22 9:38 am

Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

### History

1. Apr 11, 2022 by  
tibbettsmg  
(1633.1)

Physical ~~Synthetic~~ Organic Chemistry

Abbreviated Physical ~~Synthetic~~ Organic

Course Title Chem ~~Chemistry~~

## Catalog

## Description

Mechanisms of organic reactions and the tools used for their elucidation including kinetic isotope effects, linear-free energy relationships, MO theory and more advanced electronic structure methods, non-covalent interactions and other fundamental topics. ~~A systematic study of organic reactions, their mechanisms and synthetic applications.~~ Graduate students are expected to demonstrate a higher level of proficiency during assessments.

## Prerequisites

Chem 2220.

## Field Trip

## Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
--------------	--------	--------	--------	--------

Total: 3

Required for	No
--------------	----

Majors

Elective for	<u>Yes</u> <del>No</del>
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Majors

Justification for  
change:

The graduate student curriculum is being aligned with organic chemistry disciplines. This edit coincides with previous editing of the Chem 5210 course into the synthetic organic chemistry remedial course as first of the introductory, graduate level organic series. This course, like 5210, is remedial or introductory in physical organic chemistry for graduate students or an upper level elective for undergraduate students.

Semesters

previously  
offered as an  
experimental  
course

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (04/13/22 2:05 pm):** updated term to SP 23. MR

Key: 1633

[Preview Bridge](#)

# Course Change Request

Date Submitted: 04/12/22 12:00 pm

Viewing: **CHEM ENG 2100 : Chemical**

## Engineering Material & Energy Balances

File: 1040.14

Last approved: 05/07/18 3:34 am

Last edit: 04/13/22 12:17 pm

Changes proposed by: luksc

Programs  
referencing this  
course

[AP MATH-BS: Applied Mathematics BS](#)

[CH ENG-BS: Chemical Engineering BS](#)

[EV ENG-BS: Environmental Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[CHEM ENG 2110 : Chemical Engineering Thermodynamics I](#)

[CHEM ENG 3111 : Numerical Computing in Chemical and  
Biochemical Engineering](#)

[CHEM ENG 3120 : Chemical Engineering Thermodynamics II](#)

Requested	Spring <del>2019</del> <u>2023</u>
Effective Change	
Date	
Department	Chemical and Biochemical Engineering

### In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC  
Chair**
4. **Pending CCC  
Agenda post**
5. **CCC Meeting  
Agenda**
6. **Campus Curricula  
Committee Chair**
7. **FS Meeting  
Agenda**
8. Faculty Senate  
Chair
9. Registrar
10. CAT entry
11. Peoplesoft

### Approval Path

1. 04/12/22 12:00  
pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 04/13/22 12:17  
pm  
Marita Raper  
(tibbettsmg):

Discipline            Chemical Engineering (CHEM ENG)  
Course Number      2100  
Title

- Approved for CCC  
Secretary  
3. 04/19/22 9:05 am  
Stephen Raper  
(sraper):  
Approved for  
Engineering DSCC  
Chair  
4. 04/20/22 2:56 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post  
5. 05/03/22 9:37 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda  
6. 05/03/22 9:38 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

### History

1. May 4, 2015 by  
luksc (1040.1)
2. Oct 21, 2016 by  
forcinit (1040.4)
3. May 7, 2018 by  
forcinit (1040.9)

Abbreviated Chem Eng Mat and E Bal

Course Title

## Catalog

## Description

The application of mathematics, physics and chemistry to industrial chemical processes. The use of equations of state, chemical reaction stoichiometry, and the conservation of mass and energy to solve chemical engineering problems.

## Prerequisites

A grade of "C" Chem 1320 or better in Chem 1320 or Geology 3410 and in 3410;  
Math 1215 or ~~or~~ Math 1221; preceded or ~~or~~ accompanied by Physics 1135.

## Field Trip

## Statement

Credit Hours

LEC: 4

LAB: 0

IND: 0

RSD: 0

Total: 4

Required for

Yes

Majors

Elective for

No

Majors

## Justification for

change:

Since students will be directly admitted, we are moving our department admission requirements into the course prerequisites.

## Semesters

previously

offered as an

experimental

course

## Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (04/13/22 12:17 pm):** updated term to Spring 23. formatted prereq. MR

Key: 1040

[Preview Bridge](#)

# Course Change Request

Date Submitted: 04/12/22 12:00 pm

Viewing: **CHEM ENG 2110 : Chemical Engineering Thermodynamics I**

File: 2041.4

Last approved: 05/04/15 3:20 am

Last edit: 04/13/22 12:18 pm

Changes proposed by: luksc

Programs  
referencing this  
course

[AP MATH-BS: Applied Mathematics BS](#)

[CH ENG-BS: Chemical Engineering BS](#)

[EV ENG-BS: Environmental Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[CHEM ENG 3101 : Fundamentals of Transport in Chemical and Biochemical Engineering](#)

[CHEM ENG 3120 : Chemical Engineering Thermodynamics II](#)

[CHEM ENG 5315 : Corrosion and Its Prevention](#)

[MET ENG 3220 : Introduction To Extractive Metallurgy](#)

Requested Spring 2023 ~~08/17/2015~~  
Effective Change  
Date

In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

Approval Path

1. 04/12/22 12:02 pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 04/13/22 12:18 pm  
Marita Raper  
(tibbettsmg):

Department      Chemical and Biochemical Engineering  
 Discipline        Chemical Engineering (CHEM ENG)  
 Course Number    2110  
 Title

Approved for CCC  
 Secretary  
 3. 04/19/22 9:05 am  
 Stephen Raper  
 (sraper):  
 Approved for  
 Engineering DSCC  
 Chair  
 4. 04/20/22 2:57 pm  
 Marita Raper  
 (tibbettsmg):  
 Approved for  
 Pending CCC  
 Agenda post  
 5. 05/03/22 9:37 am  
 Marita Raper  
 (tibbettsmg):  
 Approved for CCC  
 Meeting Agenda  
 6. 05/03/22 9:39 am  
 Stephen Raper  
 (sraper):  
 Approved for  
 Campus Curricula  
 Committee Chair

### History

1. May 4, 2015 by  
 luksc (2041.1)

Chemical Engineering Thermodynamics I

Abbreviated      Chem Engr Thermo I  
 Course Title

Catalog

## Description

Development and application of the laws and fundamental relationships of thermodynamics to industrial chemical processes. Emphasis is placed on the estimation of thermophysical property values for applications in chemical process engineering.

## Prerequisites

A grade of "C" ~~Preceded by Math 2222; Preceded~~ or better in Math 2222; Preceded or accompanied by Chem Eng 2100.

## Field Trip

## Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
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Total: 3

Required for	Yes
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Majors

Elective for	No
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Majors

## Justification for

change:

Since students will be directly admitted, we are moving our department admission requirements into the course prerequisites.

## Semesters

previously

offered as an

experimental

course

## Co-Listed

Courses:

## Course Reviewer

Comments

**tibbettsmg (04/13/22 12:18 pm):** updated term to Spring 23. formatted prereq. MR

Key: 2041

[Preview Bridge](#)

# Course Change Request

Date Submitted: 04/12/22 12:01 pm

Viewing: **CHEM ENG 3101 : Fundamentals of Transport in Chemical and Biochemical Engineering**

File: 4280.9

Last approved: 05/24/16 4:57 am

Last edit: 04/13/22 12:18 pm

Changes proposed by: luksc

## In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

## Approval Path

1. 04/12/22 12:02 pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 04/13/22 12:19 pm  
Marita Raper  
(tibbettsmg):

### Programs

referencing this course

[CH ENG-BS: Chemical Engineering BS](#)

[EV ENG-BS: Environmental Engineering BS](#)

### Other Courses

referencing this course

In The Prerequisites:

[CHEM ENG 3131 : Separations in Chemical and Biochemical Engineering](#)

[CHEM ENG 3141 : Process Operations in Chemical and Biochemical Engineering](#)

[CHEM ENG 3150 : Chemical Engineering Reactor Design](#)

[CHEM ENG 5100 : Intermediate Transport Phenomena](#)

[CHEM ENG 5340 : Principles of Environmental Monitoring](#)

[NUC ENG 4257 : Two-phase Flow in Energy Systems - I](#)

[NUC ENG 4257H : Two-phase Flow in Energy Systems - I - Honors](#)

Requested [Spring 2023](#) ~~Fall 18 Prereq~~  
 Effective Change ~~Attribute Update~~  
 Date  
 Department Chemical and Biochemical Engineering  
 Discipline Chemical Engineering (CHEM ENG)  
 Course Number 3101  
 Title

Approved for CCC  
 Secretary  
 3. 04/19/22 9:05 am  
 Stephen Raper  
 (sraper):  
 Approved for  
 Engineering DSCC  
 Chair  
 4. 04/20/22 2:59 pm  
 Marita Raper  
 (tibbettsmg):  
 Approved for  
 Pending CCC  
 Agenda post  
 5. 05/03/22 9:37 am  
 Marita Raper  
 (tibbettsmg):  
 Approved for CCC  
 Meeting Agenda  
 6. 05/03/22 9:39 am  
 Stephen Raper  
 (sraper):  
 Approved for  
 Campus Curricula  
 Committee Chair

### History

1. May 24, 2016 by  
 Daniel Forciniti  
 (forcinit)

## Fundamentals of Transport in Chemical and Biochemical Engineering

Abbreviated Transport Phenomena  
 Course Title

## Catalog

### Description

This course covers the fundamentals of momentum, energy, and mass transport. Phenomenological mechanisms of molecular transport, fluid static, analysis of a fluid in motion laminar and turbulent flow are covered. The general differential equations for momentum, energy and mass transfer are presented and solved for a variety of chemical engineering problems.

### Prerequisites

A grade of "C" or better in Math 3304 and Chem Eng 2110. ~~Admitted to the Chemical Engineering Program.~~

### Field Trip

#### Statement

Credit Hours	LEC: 4	LAB: 0	IND: 0	RSD: 0
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Total: 4

Required for	Yes
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Majors

Elective for	No
--------------	----

Majors

Justification for  
change:

Since students will be directly admitted, we are moving our department admission requirements into the course prerequisites.

Semesters

previously  
offered as an  
experimental  
course

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (04/13/22 12:18 pm):** updated term to Spring 23. formatted prereq. MR

Key: 4280

[Preview Bridge](#)

# Course Change Request

Date Submitted: 04/12/22 12:02 pm

Viewing: **CHEM ENG 3111 : Numerical  
Computing in Chemical and Biochemical  
Engineering**

File: 4279.27

Last approved: 05/03/21 6:01 am

Last edit: 04/13/22 12:21 pm

Changes proposed by: luksc

## In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC  
Chair**
4. **Pending CCC  
Agenda post**
5. **CCC Meeting  
Agenda**
6. **Campus Curricula  
Committee Chair**
7. **FS Meeting  
Agenda**
8. Faculty Senate  
Chair
9. Registrar
10. CAT entry
11. Peoplesoft

## Approval Path

1. 04/12/22 12:08  
pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 04/13/22 12:21  
pm  
Marita Raper  
(tibbetmsg):

Programs  
referencing this  
course

[CH ENG-BS: Chemical Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[CHEM ENG 3131 : Separations in Chemical and Biochemical  
Engineering](#)

[CHEM ENG 3150 : Chemical Engineering Reactor Design](#)

[CHEM ENG 6180 : Advanced Applications of Computational  
Fluid Dynamics](#)

Requested                      Spring ~~2022~~ 2023

Effective Change

Date

Department                      Chemical and Biochemical Engineering

Discipline            Chemical Engineering (CHEM ENG)  
Course Number        3111  
Title

- Approved for CCC  
Secretary
3. 04/19/22 9:05 am  
Stephen Raper  
(sraper):  
Approved for  
Engineering DSCC  
Chair
4. 04/20/22 3:08 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:37 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
6. 05/03/22 9:39 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

### History

1. Jan 24, 2017 by  
Daniel Forciniti  
(forcinit)
2. Mar 6, 2017 by  
kristyg (4279.14)
3. Feb 18, 2019 by  
jcwang (4279.17)
4. Nov 4, 2019 by

jcwang (4279.21)

5. Oct 19, 2020 by

luksc (4279.22)

6. May 3, 2021 by

luksc (4279.25)

## Numerical Computing in Chemical and Biochemical Engineering

Abbreviated Numerical Computing

Course Title

## Catalog

## Description

Students will add to their programming skills by exploring numerical computational techniques for solving and analyzing algebraic and calculus-based equations and systems of equations that describe chemical engineering processes.

## Prerequisites

A grade of "C" or better in Math 3304. ~~Math 3304 and either~~ Comp Sci 1500, or both Comp Sci 1570 and Comp Sci 1580, or both Comp Sci 1971 and Comp Sci 1981, or both Comp Sci 1972 and Comp Sci 1982; preceded or accompanied by Chem Eng 2100.

## Field Trip

## Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Required for

Yes

Majors

Elective for

No

Majors

## Justification for

change:

Since students will be directly admitted, we are moving our department admission

requirements into the course prerequisites.

Semesters

previously  
offered as an  
experimental  
course

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (04/13/22 12:20 pm):** updated term to Spring 23. formatted prereq. MR

Key: 4279

[Preview Bridge](#)

# Course Change Request

Date Submitted: 04/12/22 12:03 pm

Viewing: **CHEM ENG 3120 : Chemical Engineering Thermodynamics II**

File: 436.6

Last approved: 10/16/17 11:55 am

Last edit: 04/13/22 12:21 pm

Changes proposed by: luksc

Programs  
referencing this  
course

[CH ENG-BS: Chemical Engineering BS](#)

[EV ENG-BS: Environmental Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[CHEM ENG 3131 : Separations in Chemical and Biochemical Engineering](#)

[CHEM ENG 3141 : Process Operations in Chemical and Biochemical Engineering](#)

[CHEM ENG 3200 : Biochemical Separations](#)

[CHEM ENG 5161 : Intermediate Molecular Engineering](#)

[CHEM ENG 5220 : Intermediate Engineering Thermodynamics](#)

[MET ENG 5310 : Corrosion and Its Prevention](#)

Requested [Spring 2023](#) ~~Fall 18 Prereq~~  
Effective Change ~~Attribute Update~~

In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

Approval Path

1. 04/12/22 12:08 pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 04/13/22 12:21 pm  
Marita Raper  
(tibbetmsg):

Date

Department      Chemical and Biochemical Engineering

Discipline        Chemical Engineering (CHEM ENG)

Course Number    3120

Title

Approved for CCC  
Secretary

3. 04/19/22 9:05 am  
Stephen Raper  
(sraper):  
Approved for  
Engineering DSCC  
Chair

4. 04/20/22 3:09 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post

5. 05/03/22 9:37 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda

6. 05/03/22 9:38 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

### History

1. Oct 16, 2017 by  
forcinit (436.1)

Chemical Engineering Thermodynamics II

Abbreviated      Chem Engr Thermo II

Course Title

Catalog

## Description

Physical, chemical and reaction equilibrium. Study of the thermophysical relationships of multicomponent, multiphase equilibrium. Application of equilibrium relationships to the design and operation of chemical mixers, separators and reactors.

## Prerequisites

A grade ~~Grade~~ of "C" or better in Chem Eng 2100 and Chem Eng 2110. ~~2110; Chem Eng majors only.~~

## Field Trip

## Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Required for

Yes

Majors

Elective for

No

Majors

## Justification for

change:

Since students will be directly admitted, we are moving our department admission requirements into the course prerequisites.

## Semesters

previously

offered as an

experimental

course

## Co-Listed

Courses:

## Course Reviewer

Comments

**tibbettsmg (04/13/22 12:21 pm):** updated term to Spring 23. formatted prereq. MR

Key: 436

[Preview Bridge](#)

# Course Change Request

Date Submitted: 04/12/22 12:03 pm

Viewing: **CHEM ENG 3131 : Separations in Chemical and Biochemical Engineering**

File: 4282.14

Last approved: 06/17/19 3:36 am

Last edit: 04/13/22 12:23 pm

Changes proposed by: luksc

## In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

## Approval Path

1. 04/12/22 12:08 pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 04/13/22 12:23 pm  
Marita Raper  
(tibbettsmg):

Programs  
referencing this  
course

[CH ENG-BS: Chemical Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[CHEM ENG 4091 : Chemical Process Design I](#)

[CHEM ENG 4110 : Chemical Engineering Process Dynamics And Control](#)

[CHEM ENG 4130 : Chemical Engineering Laboratory II](#)

[CHEM ENG 5120 : Interfacial Phenomena In Chemical Engineering](#)

[CHEM ENG 5170 : Physical Property Estimation](#)

[CHEM ENG 5250 : Isolation and Purification of Biologicals](#)

[CHEM ENG 5305 : Hazardous Materials Management](#)

[CHEM ENG 5310 : Structure and Properties of Polymers](#)

[CHEM ENG 5330 : Alternative Fuels](#)

[CHEM ENG 5350 : Environmental Chemodynamics](#)

Requested [Fall 2022](#) ~~Spring 2020~~  
Effective Change  
Date  
Department Chemical and Biochemical Engineering  
Discipline Chemical Engineering (CHEM ENG)  
Course Number 3131  
Title

Approved for CCC  
Secretary  
3. 04/19/22 9:05 am  
Stephen Raper  
(sraper):  
Approved for  
Engineering DSCC  
Chair  
4. 04/20/22 3:10 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post  
5. 05/03/22 9:37 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda  
6. 05/03/22 9:38 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

### History

1. Jan 10, 2017 by  
Daniel Forciniti  
(forcinit)
2. Mar 6, 2017 by  
kristyg (4282.11)
3. Jun 17, 2019 by  
jcwang (4282.12)

## Separations in Chemical and Biochemical Engineering

Abbreviated Process Separations

Course Title

Catalog

Description

Flash and column distillation. McCabe-Thiele method, plate efficiencies. Azeotropes. Batch distillation. Absorption and stripping. Washing and leaching.

Prerequisites

Chem Eng 3101, Chem Eng 3111, and Chem Eng 3120. ~~Admitted to the Chemical Engineering Program.~~

Field Trip

Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Required for

Yes

Majors

Elective for

No

Majors

Justification for

change:

Since students will be directly admitted, we are moving our department admission requirements into the course prerequisites.

Semesters

previously

offered as an

experimental

course

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (04/13/22 12:23 pm):** non-affecting change. updated term to FS22. MR

Key: 4282

[Preview Bridge](#)

# Course Change Request

Date Submitted: 04/12/22 12:03 pm

Viewing: **CHEM ENG 3141 : Process Operations  
in Chemical and Biochemical Engineering**

File: 4281.9

Last approved: 06/25/18 3:38 am

Last edit: 04/13/22 12:23 pm

Changes proposed by: luksc

## In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC  
Chair**
4. **Pending CCC  
Agenda post**
5. **CCC Meeting  
Agenda**
6. **Campus Curricula  
Committee Chair**
7. **FS Meeting  
Agenda**
8. Faculty Senate  
Chair
9. Registrar
10. CAT entry
11. Peoplesoft

## Approval Path

1. 04/12/22 12:08  
pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 04/13/22 12:24  
pm  
Marita Raper  
(tibbettsmg):

Programs  
referencing this  
course

[CH ENG-BS: Chemical Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[CHEM ENG 4091 : Chemical Process Design I](#)

[CHEM ENG 4101 : Chemical Engineering Laboratory I](#)

[CHEM ENG 4110 : Chemical Engineering Process Dynamics And  
Control](#)

[CHEM ENG 4130 : Chemical Engineering Laboratory II](#)

[CHEM ENG 5250 : Isolation and Purification of Biologicals](#)

Requested **Fall 2022 Spring 2019**

Effective Change

Date

Department Chemical and Biochemical Engineering

Discipline            Chemical Engineering (CHEM ENG)

Course Number      3141

Title

Approved for CCC

Secretary

3. 04/19/22 9:05 am

Stephen Raper

(sraper):

Approved for

Engineering DSCC

Chair

4. 04/20/22 3:11 pm

Marita Raper

(tibbettsmg):

Approved for

Pending CCC

Agenda post

5. 05/03/22 9:37 am

Marita Raper

(tibbettsmg):

Approved for CCC

Meeting Agenda

6. 05/03/22 9:38 am

Stephen Raper

(sraper):

Approved for

Campus Curricula

Committee Chair

### History

1. May 24, 2016 by

Daniel Forciniti

(forcinit)

2. Jun 25, 2018 by

forcinit (4281.6)

Process Operations in Chemical and Biochemical Engineering

## Abbreviated Process Operations

## Course Title

## Catalog

## Description

Design and selection of pumps, fans, compressors, valves, and ejectors. Design and selection of heat exchangers, condensers and reboilers. Design of mixing equipment, sterilizers, sedimentation vessels, centrifuges, and filtration and ultrafiltration units.

## Prerequisites

Chem Eng 3101 and Chem Eng 3120. ~~Admitted to the Chemical Engineering Program.~~

## Field Trip

## Statement

## Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

## Required for

Yes

## Majors

## Elective for

No

## Majors

## Justification for

## change:

Since students will be directly admitted, we are moving our department admission requirements into the course prerequisites.

## Semesters

## previously

## offered as an

## experimental

## course

## Co-Listed

## Courses:

Course Reviewer

Comments

**tibbettsmg (04/13/22 12:23 pm):** non-affecting change. updated term to FS22. MR

Key: 4281

[Preview Bridge](#)

# Course Change Request

Date Submitted: 04/12/22 12:04 pm

Viewing: **CHEM ENG 3150 : Chemical Engineering Reactor Design**

File: 1038.12

Last approved: 05/03/21 6:00 am

Last edit: 04/13/22 12:24 pm

Changes proposed by: luksc

Programs  
referencing this  
course

[CH ENG-BS: Chemical Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[CHEM ENG 4091 : Chemical Process Design I](#)

[CHEM ENG 4097 : Chemical Process Design II](#)

[CHEM ENG 4110 : Chemical Engineering Process Dynamics And Control](#)

[CHEM ENG 4130 : Chemical Engineering Laboratory II](#)

[CHEM ENG 4140 : Chemical Process Safety](#)

[CHEM ENG 4210 : Biochemical Reactors](#)

[CHEM ENG 4241 : Process Safety in the Chemical and Biochemical Industries](#)

[CHEM ENG 5110 : Intermediate Chemical Reactor Design](#)

[CHEM ENG 5210 : Intermediate Biochemical Reactors](#)

In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

Approval Path

1. 04/12/22 12:08 pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 04/13/22 12:24 pm  
Marita Raper  
(tibbettsmg):

Requested Fall ~~Spring~~ 2022  
 Effective Change  
 Date  
 Department Chemical and Biochemical Engineering  
 Discipline Chemical Engineering (CHEM ENG)  
 Course Number 3150  
 Title

Approved for CCC  
 Secretary  
 3. 04/19/22 9:05 am  
 Stephen Raper  
 (sraper):  
 Approved for  
 Engineering DSCC  
 Chair  
 4. 04/20/22 3:18 pm  
 Marita Raper  
 (tibbettsmg):  
 Approved for  
 Pending CCC  
 Agenda post  
 5. 05/03/22 9:37 am  
 Marita Raper  
 (tibbettsmg):  
 Approved for CCC  
 Meeting Agenda  
 6. 05/03/22 9:39 am  
 Stephen Raper  
 (sraper):  
 Approved for  
 Campus Curricula  
 Committee Chair

### History

1. Jun 29, 2015 by luksc (1038.1)
2. May 24, 2016 by forcinit (1038.5)
3. May 3, 2021 by luksc (1038.10)

Abbreviated            Chem Engr Reactor Design  
Course Title

Catalog

Description

The study of chemical reaction kinetics and their application to the design and operation of chemical and catalytic reactors.

Prerequisites

Preceded or accompanied by both Chem Eng 3111 and Chem Eng 3101. ~~Admitted to Chem-Eng program.~~

Field Trip

Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Required for

Yes

Majors

Elective for

No

Majors

Justification for

change:

Since students will be directly admitted, we are moving our department admission requirements into the course prerequisites.

Semesters

previously

offered as an

experimental

course

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (04/13/22 12:24 pm):** non-affecting change. updated term to FS22. MR

Key: 1038

[Preview Bridge](#)

# Course Change Request

Date Submitted: 04/12/22 12:06 pm

Viewing: **CHEM ENG 4091 : Chemical Process Design I**

File: 4285.18

Last approved: 05/03/21 6:01 am

Last edit: 04/13/22 12:26 pm

Changes proposed by: luksc

Programs  
referencing this  
course

[CH ENG-BS: Chemical Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[CHEM ENG 4097 : Chemical Process Design II](#)

Requested Effective Change Date	Spring <del>2022</del> <u>2023</u>
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4091
Title	

## In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

## Approval Path

1. 04/12/22 12:09 pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 04/13/22 12:27 pm  
Marita Raper  
(tibbetmsg):

- Approved for CCC  
Secretary
3. 04/19/22 9:05 am  
Stephen Raper  
(sraper):  
Approved for  
Engineering DSCC  
Chair
4. 04/20/22 3:18 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:37 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
6. 05/03/22 9:38 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

---

## History

1. Jan 10, 2017 by  
Daniel Forciniti  
(forcinit)
2. Mar 6, 2017 by  
kristyg (4285.12)
3. Feb 4, 2019 by  
jcwang (4285.14)
4. May 3, 2021 by

luksc (4285.16)

## Chemical Process Design I

Abbreviated Chem Process Design I

Course Title

## Catalog

## Description

Economic analysis of a chemical process including capital requirements, operating costs, earnings, and profits. The economic balance is applied to chemical engineering operations and processes. Optimization and scheduling techniques are applied to process evaluation. Preliminary process design and use of simulation software.

## Prerequisites

Chem Eng 3131 and Chem Eng 3141; preceded or accompanied by ~~either~~ Chem Eng [3150](#); ~~3150 or Chem Eng 5250~~; preceded or accompanied by either English 3560 or English 1160.

## Field Trip

## Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
--------------	--------	--------	--------	--------

Total: 3

Required for	Yes
--------------	-----

Majors

Elective for	No
--------------	----

Majors

Justification for  
change:

All students take ChemEng 3150 so this simplifies the list

Semesters

previously

offered as an

experimental

course

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (04/13/22 12:26 pm):** updated term to Spring 23. MR

Key: 4285

[Preview Bridge](#)

# Course Change Request

Date Submitted: 04/12/22 12:09 pm

Viewing: **CHEM ENG 5250 : Isolation and Purification of Biologicals**

File: 4290.6

Last approved: 05/24/16 4:57 am

Last edit: 04/13/22 12:30 pm

Changes proposed by: luksc

## In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

## Approval Path

1. 04/12/22 12:09 pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 04/13/22 12:30 pm  
Marita Raper  
(tibbettsmg):

Programs  
referencing this  
course

[CH ENG-BS: Chemical Engineering BS](#)

[CHEMPRO-CT: Chemical Process Engineering CT](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[CHEM ENG 4091 : Chemical Process Design I](#)

[CHEM ENG 4201 : Biochemical Separations and Control Laboratory](#)

Requested	<a href="#">Spring 2023</a> <del>Fall 18 Prereq</del>
Effective Change Date	<del>Attribute Update</del>
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)

Course Number 5250

Title

Approved for CCC  
Secretary

3. 04/19/22 9:05 am

Stephen Raper

(sraper):

Approved for  
Engineering DSCC  
Chair

4. 04/20/22 3:19 pm

Marita Raper

(tibbettsmg):

Approved for  
Pending CCC

Agenda post

5. 05/03/22 9:38 am

Marita Raper

(tibbettsmg):

Approved for CCC  
Meeting Agenda

6. 05/03/22 9:39 am

Stephen Raper

(sraper):

Approved for  
Campus Curricula  
Committee Chair

### History

1. May 24, 2016 by

Daniel Forciniti

(forcinit)

Isolation and Purification of Biologicals

Abbreviated Iso and Purif of Biolog

Course Title

## Catalog

## Description

Isolation and purification of biologicals with emphasis on biopharmaceuticals. Principles and applications of chromatography, lyophilization, and product formulation. Use of ultrafiltration and diafiltration in the processing of protein products. Disposable technology.

## Prerequisites

Preceded or accompanied by Chem Eng 3131 and Chem Eng 3141.

## Field Trip

## Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
--------------	--------	--------	--------	--------

Total: 3

Required for	Yes
--------------	-----

Majors

Elective for	No
--------------	----

Majors

Justification for  
change:

Modifying prerequisites to make it easier for students to fit in the courses before graduation

Semesters  
previously  
offered as an  
experimental  
course

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (04/13/22 12:30 pm):** updated term to Spring 23. MR

Key: 4290

[Preview Bridge](#)

# Course Change Request

## New Course Proposal

Date Submitted: 04/11/22 1:07 pm

Viewing: **COMP SCI 5701 : Experiential**

## Entrepreneurship for Computer Scientists

File: 4269

Last edit: 04/12/22 12:03 pm

Changes proposed by: zhupe

Requested	Fall 2022
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	5701
Title	

### In Workflow

1. **RCOMPSCI Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

### Approval Path

1. 04/11/22 3:21 pm  
Samuel Frimpong (frimpong):  
Approved for RCOMPSCI Chair
2. 04/12/22 12:03 pm  
Marita Raper (tibbetmsg):

- Approved for CCC  
Secretary
3. 04/19/22 9:06 am  
Stephen Raper  
(sraper):  
Approved for  
Engineering DSCC  
Chair
4. 04/20/22 3:20 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:38 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
6. 05/03/22 9:38 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

## Experiential Entrepreneurship for Computer Scientists

Abbreviated Course Title      CompSci Entrepreneurship

### Catalog

#### Description

Students will work in teams mentored by experienced entrepreneurs to generate innovative ideas and transform them into business models for economically viable knowledge tech companies. Experiential learning will be used in live customer

discovery, prototyping and market validation. The prototyping phase will contain a significant computer science component.

#### Prerequisites

A grade of "C" or better in Comp Sci 3100 or Comp Sci 4090.

#### Field Trip

#### Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
--------------	--------	--------	--------	--------

Total: 3

Required for	No
--------------	----

#### Majors

Elective for	Yes
--------------	-----

#### Majors

#### Justification for

new course:

The experimental version of this course (COMP SCI 5001) has been taught twice and the department plans to continue offering this course, so requests that it be given permanent status.

#### Semesters

previously

offered as an

experimental

course

Enrollment:13 Fall 2021

Enrollment:12 Spring 2020

#### Co-Listed

Courses:

#### Course Reviewer

#### Comments

**tibbettsmg (04/12/22 12:03 pm):** enrollment verified. updated prereq formatting.

MR

Key: 4269

[Preview Bridge](#)

# Course Change Request

Date Submitted: 03/23/22 3:56 pm

Viewing: **ECON 4430 : Cost-Benefit Analysis**

File: 502.1

Last edit: 05/03/22 9:37 am

Changes proposed by: davismc

Programs  
referencing this  
course

[PRE LAW-MI: Pre Law Minor](#)

[CP ENG-BS: Computer Engineering BS](#)

[EL ENG-BS: Electrical Engineering BS](#)

[E/T ECN-MI: E/T Economics Minor](#)

Requested	<a href="#">Spring 2023</a> <del>Fall 18 Prereq</del>
Effective Change	<del>Attribute Update</del>
Date	
Department	Economics
Discipline	Economics (ECON)
Course Number	4430
Title	

## In Workflow

1. **RECONOMI Chair**
2. **CCC Secretary**
3. **Social Sciences  
DSCC Chair**
4. **Pending CCC  
Agenda post**
5. **CCC Meeting  
Agenda**
6. **Campus Curricula  
Committee Chair**
7. **FS Meeting  
Agenda**
8. Faculty Senate  
Chair
9. Registrar
10. CAT entry
11. Peoplesoft

## Approval Path

1. 03/23/22 3:57 pm  
Michael Davis  
(davismc):  
Approved for  
RECONOMI Chair
2. 03/23/22 4:16 pm  
Marita Raper  
(tibbettsmg):  
Approved for CCC

Secretary

3. 03/23/22 8:04 pm

Cecil Eng Huang

Chua (cchua):

Approved for

Social Sciences

DSCC Chair

4. 04/20/22 3:21 pm

Marita Raper

(tibbettsmg):

Approved for

Pending CCC

Agenda post

5. 05/03/22 9:38 am

Marita Raper

(tibbettsmg):

Approved for CCC

Meeting Agenda

6. 05/03/22 9:39 am

Stephen Raper

(sraper):

Approved for

Campus Curricula

Committee Chair

## Cost-Benefit Analysis

Abbreviated Course Title      Cost-Benefit Analysis

### Catalog

#### Description

Investigates the rationale for cost-benefit analysis within a free enterprise setting. Discussion of market efficiency and failure; determination of social costs and benefits; applications of cost-benefit analysis; and, problems remaining in theory and practice.

## Prerequisites

Econ 1100. ~~2100~~.

## Field Trip

## Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Required for

No

Majors

Elective for

Yes ~~No~~

Majors

## Justification for

change:

Will allow more students to take the class, and the new prerequisite matches up better with the requirements of the class.

## Semesters

previously

offered as an

experimental

course

## Co-Listed

Courses:

## Course Reviewer

## Comments

**tibbettsmg (03/23/22 4:15 pm):** missed Fall 22 deadline. updated effective term to Sp23. MR

Key: 502

[Preview Bridge](#)

# Course Change Request

A deleted record cannot be edited

## Course Deactivation Proposal

Date Submitted: 04/06/22 1:43 pm

Viewing: **LATIN 2001 : Special Topics**

File: 1714.1

Last edit: 04/12/22 11:20 am

Changes proposed by: msp7h

Requested	Fall <u>2022</u> <del>2014</del>
Effective Change Date	
Department	Arts, Languages, & Philosophy
Discipline	LATIN (LATIN)
Course Number	2001
Title	

### In Workflow

1. RPHILOSOSO Chair
2. CCC Secretary
3. Arts & Humanities DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

### Approval Path

1. 04/07/22 1:16 pm  
Audra Merfeld-Langston  
(audram):  
Approved for RPHILOSOSO Chair
2. 04/12/22 11:20

- am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
3. 04/12/22 11:21  
am  
Marita Raper  
(tibbettsmg):  
Rollback to CCC  
Secretary for  
Pending CCC  
Agenda post
4. 04/12/22 11:23  
am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
5. 04/12/22 11:38  
am  
Petra Dewitt  
(dewittp):  
Approved for Arts  
& Humanities  
DSCC Chair
6. 04/20/22 3:22 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
7. 05/03/22 9:38 am  
Marita Raper  
(tibbettsmg):

Approved for CCC  
Meeting Agenda  
8. 05/03/22 9:39 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

## Special Topics

Abbreviated Special Topics

Course Title

Topics Titles

### Catalog

#### Description

This course is designed to give the department an opportunity to test a new course.

Variable title.

#### Prerequisites

#### Field Trip

#### Statement

Credit Hours

LEC: 0

LAB: 0

IND: 0

RSD: 0

Total: 0-6

Required for

No

Majors

Elective for

No

Majors

#### Justification for

change:

Latin courses have not been offered by the department in over a decade.

Semesters  
previously  
offered as an  
experimental  
course

Co-Listed  
Courses:

Course Reviewer

Comments

**tibbettsmg (04/12/22 11:21 am):** Rollback: rollback to modify workflow approvals.

MR

Key: 1714

[Preview Bridge](#)

# Course Change Request

## New Course Proposal

Date Submitted: 04/08/22 11:41 am

Viewing: **STAT 4210 : Introduction to Statistical Data Science**

File: 4872

Last edit: 04/12/22 11:32 am

Changes proposed by: prunion

Programs  
referencing this  
course

[AP MATH-BS: Applied Mathematics BS](#)

Requested	Fall 2022
Effective Change Date	
Department	Mathematics & Statistics
Discipline	Statistics (STAT)
Course Number	4210
Title	

### In Workflow

1. **RMATHEMA Chair**
2. **CCC Secretary**
3. **Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

### Approval Path

1. 04/08/22 12:03 pm  
John Singler (singlerj):  
Approved for  
RMATHEMA Chair
2. 04/12/22 11:32 am

- Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
3. 04/18/22 4:07 pm  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC  
Chair
4. 04/20/22 3:24 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:38 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
6. 05/03/22 9:39 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

## Introduction to Statistical Data Science

Abbreviated            Intro Stat Data Science  
Course Title

### Catalog

### Description

A course introducing students to key data science methodologies and inferential

thinking. A set of tools for modeling and understanding complex datasets will be developed. Methods such as regression, cross-validation, classification, tree-based methods, support vector machines, and unsupervised learning will be covered.

#### Prerequisites

Stat 3113 or Stat 3115 or Stat 3117; Math 2222 or Math 3108; Comp Sci 1500 or Comp Sci 1570.

#### Field Trip

#### Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
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Total: 3

Required for	Yes
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Majors

Elective for	No
--------------	----

Majors

#### Justification for

new course:

The emerging field of data science provides an important opportunity for Missouri S&T to attract more students, especially those who may not have considered us as an option. It also provides a way to enrich the training we provide our existing students, by preparing them for a workplace that is becoming more and more data driven. Two publications by the National Academies of Science Engineering and Medicine, *Envisioning the Data Science Discipline: The Undergraduate Perspective* and *Data Science for Undergraduates: Opportunities and Options*, lay out what undergraduate data science education should look like, but more importantly, discuss the importance of data science education not only as a specialized discipline in itself, but as an essential component of all undergraduate education. One of their recommendations specifically states the following: "To prepare their graduates for this new data driven era, academic institutions should encourage the development of a basic understanding of data science in all undergraduates."

Because of these reasons and others, the Missouri S&T Academic Program

Committee (APC) has recommended that “individual departments create data science pathways for all students on campus.” The APC report goes on to recommend the creation of undergraduate certificates, minors, and emphasis areas within the BS degrees. Our proposal to modify the Statistics emphasis area into the Data Science and Statistics emphasis area under the Applied Mathematics BS degree is aligned with this recommendation, and this course is a foundational part of this change. Therefore, we are requesting a permanent course number after only offering the course one time since it will be required for the emphasis as listed in the pending DC form.

Semesters

previously

offered as an

experimental

course

Spring 2022

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (04/12/22 11:32 am):** required for degree; skipping EC process. MR

Key: 4872

[Preview Bridge](#)

## Program Change Request

Date Submitted: 04/08/22 11:46 am

Viewing: **AP MATH-BS : Applied Mathematics  
BS**

File: 142.58

Last approved: 05/05/21 8:29 am

Last edit: 04/13/22 12:13 pm

Changes proposed by: prunnion

Catalog Pages Using this Program  
[Mathematics](#)

### Start Term

Fall 2022 ~~2021~~

Program Code

AP MATH-BS

Department

Mathematics & Statistics

Title

Applied Mathematics BS

### Program Requirements and Description

### In Workflow

1. **RMATHEMA Chair**
2. **CCC Secretary**
3. **Sciences DSCC  
Chair**
4. **Pending CCC  
Agenda post**
5. **CCC Meeting  
Agenda**
6. **Campus Curricula  
Committee Chair**
7. **FS Meeting  
Agenda**
8. **Faculty Senate  
Chair**
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/08/22 12:03 pm  
John Singler  
(singlerj): Approved  
for RMATHEMA  
Chair
2. 04/13/22 12:14 pm  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
3. 04/22/22 10:17 am  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC  
Chair
4. 04/22/22 2:06 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:34 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
6. 05/03/22 9:37 am

Stephen Raper  
(sraper): Approved  
for Campus  
Curricula  
Committee Chair

## History

1. Apr 28, 2014 by Ilene Morgan (imorgan)
2. Apr 28, 2014 by Lahne Black (lahne)
3. Jun 13, 2014 by pantaleoa
4. Jun 13, 2014 by pantaleoa
5. Jul 21, 2015 by pantaleoa
6. Jul 21, 2015 by pantaleoa
7. Apr 25, 2016 by Ilene Morgan (imorgan)
8. Aug 12, 2016 by cladmin-bdietzler
9. Jun 14, 2019 by Paul Runnion (prunnion)
10. Jul 1, 2020 by Paul Runnion (prunnion)
11. Feb 3, 2021 by Paul Runnion (prunnion)
12. Mar 9, 2021 by Marita Raper (tibbettsmg)
13. Mar 9, 2021 by Marita Raper (tibbettsmg)
14. May 5, 2021 by Paul Runnion (prunnion)

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## Bachelor of Science Applied Mathematics

A minimum of 120 ~~428~~ credit hours is required for a bachelor of science degree in applied mathematics. A minimum grade of "C" is required by the department in each course counted toward the math/stat requirement for the B.S. in applied mathematics. Moreover, the department requires that an average of at least two grade points per credit hour must be obtained for all courses taken within the department. These requirements for the B.S. degree are in addition to credit received for algebra, trigonometry, and basic ROTC.

The applied mathematics curriculum requires fifteen semester hours of technical electives, except where this requirement is reduced to compensate for extra requirements of emphasis areas, in addition to basic courses in chemistry or biology, physics, computer science, and economics. Two semesters of language and communication, [ENGLISH 1160](#) or [ENGLISH 3560](#), and either [HISTORY 1300](#), [HISTORY 1310](#), [HISTORY 1200](#), or [POL SCI 1200](#) are also required. Specific requirements for the bachelor's degree are outlined in the sample program below.

<b>Freshman Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MATH 1101</a>	1	<a href="#">MATH 1215</a> or <a href="#">1221</a> <sup>1</sup>	4
<a href="#">MATH 1214</a> or <a href="#">1211</a> <sup>1</sup>	<u>4</u>	Science Requirement <sup>5</sup>	5
OR		<a href="#">COMP SCI 1500</a>	3
<del>MATH 1240 &amp; MATH 1241</del>	-	<del>Language and Communication Requirement<sup>3</sup></del>	<del>3</del>
<a href="#">MATH 1208</a>		<a href="#">ENGLISH 1160</a> or <a href="#">1600</a> <sup>8</sup>	<u>3</u>
<a href="#">CHEM 1100</a> <sup>1</sup>	1	Basic ROTC (if elected) <sup>4</sup>	0
<a href="#">ENGLISH 1120</a>	3		
<a href="#">ECON 1100</a> or <a href="#">1200</a>	<u>3</u>		
Campus History Requirement <sup>2</sup>	3		
<del>Language and Communication Requirement<sup>3</sup></del>	<del>3</del>		
Basic ROTC (if elected) <sup>4</sup>	0		
	15		15
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MATH 2222</a> <sup>1</sup>	4	<a href="#">MATH 3304</a> <sup>1</sup>	3
<a href="#">MATH 3108</a> <sup>1</sup>	3	<a href="#">MATH 3109</a> <sup>1</sup>	3
<a href="#">COMP SCI 1570</a>	3	Statistics Requirement <sup>1,6,7</sup>	3
<a href="#">COMP SCI 1580</a>	1	<del>ECON 1100</del> or <del>1200</del>	<del>3</del>
<a href="#">PHYSICS 1135</a>	4	<a href="#">PHYSICS 2135</a>	4
<del>ENGLISH 1160</del> <sup>8</sup>	<del>3</del>	<a href="#">Literature</a>	<u>3</u>
Basic ROTC (if elected) <sup>4</sup>	0	Basic ROTC (if elected) <sup>4</sup>	0
	15		16
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MATH 4209</a> <sup>1</sup>	3	<a href="#">MATH 4211</a> <sup>1, 12</sup>	3
<del>Literature</del>	<del>3</del>	<del>Literature</del>	<del>3</del>
<a href="#">SP&amp;M S 1185</a> or <a href="#">3245</a> <sup>14</sup>	<u>3</u>	<a href="#">Humanities/Social Science Elective</a> <sup>3</sup>	<u>3</u>
Electives-Math or Stat <sup>1,7,9</sup>	3	Electives-Math or Stat <sup>1,7,9</sup>	3
Electives-Technical <sup>10</sup>	3	Electives-Technical <sup>10</sup>	3
Electives <sup>13</sup>	3	Electives <sup>13</sup>	3
	15		15

Senior Year			
First Semester	Credits	Second Semester	Credits
Capstone Course <sup>1,7,11</sup>	3	Electives-Math or Stat <sup>1,7,9</sup>	3
Electives-Math or Stat <sup>1,7,9</sup>	3	Electives-Technical <sup>10</sup>	3
Electives-Technical <sup>10</sup>	6	Electives <sup>13</sup>	8
<b>Electives<sup>13</sup></b>	<b>6</b>		
<b><u>Humanities/Social Science Elective<sup>3</sup></u></b>	<b><u>3</u></b>		
	15		14
Total Credits: 120			

1

A minimum grade of "C" is required by the department in each course counted toward the math/stat requirement for the B.S. in applied mathematics. Moreover, the department requires that an average of at least two grade points per credit hour must be obtained for all courses taken within the department.

2

May be met by [HISTORY 1200](#), [HISTORY 1300](#), [HISTORY 1310](#), or [POL SCI 1200](#).

3

The two humanities/social science electives (at least 3 credits each) are to be selected from lecture courses in ART, ENGLISH, ETYM, FRENCH, GERMAN, HISTORY, MUSIC, PHILOS, POL SCI, PSYCH, RUSSIAN, SPANISH, SP&M S, and THEATRE.

4

Basic ROTC may be elected in the freshman and sophomore years, but is not creditable toward a degree. Up to six credit hours of advanced ROTC may be credited as free electives towards a degree.

5

May be met by [CHEM 1310](#) and [CHEM 1319](#) or by [BIO SCI 1113](#) and [BIO SCI 1219](#).

6

May be met by [STAT 3113](#), [STAT 3115](#), or [STAT 3117](#).

7

No course may be used to satisfy more than one degree requirement, except as otherwise noted.

8

May also be satisfied by [ENGLISH 3560](#).

9

The student must choose two from the following five groups and then complete six hours in each of the chosen groups

1. [MATH 5105](#), [MATH 5106](#), [MATH 5107](#), [MATH 5108](#)
2. [MATH 5105](#), [MATH 5215](#), [MATH 4530](#) or [MATH 5530](#), [MATH 5351](#), [MATH 5585](#)
3. [MATH 5222](#), [MATH 5302](#), [MATH 5325](#), [MATH 5351](#), [MATH 5483](#), [MATH 5603](#), [MATH 5604](#)
4. [STAT 5814](#), [STAT 5643](#), [STAT 5644](#), [STAT 5346](#), [STAT 5353](#), [STAT 5755](#), [STAT 5756](#)
5. [COMP SCI 3200](#), [COMP SCI 5201](#), [COMP SCI 5202](#), [MATH 5603](#), [MATH 5604](#), [MATH 5737](#), [STAT 5260](#), [STAT 5346](#), [STAT 5755](#), [STAT 5756](#), [STAT 5814](#).

10

Courses in biology, chemistry, computer science, economics, engineering, geology, mechanics, or physics approved by advisor. The general math curriculum requires 15 credit hours; actuarial science emphasis area, 9 credit hours; algebra/discrete math emphasis area, 15 credit hours; computational math emphasis area, 9 credit hours. All technical elective requirements are built in to the statistics emphasis area via the included computer science minor. All technical elective requirements are built in to the applied analysis emphasis area.

11

The capstone experience for all applied mathematics majors (other than students completing the secondary education emphasis area) consists of a course chosen from the following list: [MATH 4098](#) (three credits), [MATH 4099](#) or [STAT 4099](#) (three credits), [MATH 5107](#), [MATH 5215](#), [MATH 5603](#), [STAT 5346](#), [STAT 5353](#), [STAT 5755](#), or [STAT 5756](#).

12

Math 4211 is not required for students earning the Statistics emphasis area.

13

Sufficient free electives to earn a minimum of 120 credit hours.

14

May also be satisfied by one of the two complete four-course sequences in Advanced ROTC.

## Emphasis Areas at the Bachelor of Science Level

**Note:** It is not required that students complete an emphasis area to obtain the bachelor of science degree in applied mathematics. The emphasis area requirements often specify most, if not all, of the electives in mathematics, statistics and computer science as well as many technical or free electives.

### Actuarial Science Emphasis Area

Required courses:

<a href="#">STAT 5643</a>	Probability And Statistics	3
<a href="#">STAT 5644</a>	Mathematical Statistics	3
<a href="#">ECON 1100</a>	Principles Of Microeconomics	3
<a href="#">ECON 1200</a>	Principles Of Macroeconomics	3
<a href="#">ECON 2200</a>	Intermediate Macroeconomic Theory	3
<a href="#">MATH 5737</a>	Financial Mathematics	3
And six hours from:		6
<a href="#">STAT 5814</a>	Applied Time Series Analysis	3
<a href="#">STAT 5346</a>	Regression Analysis	3
<a href="#">STAT 5353</a>	Statistical Data Analysis	3
<a href="#">STAT 5755</a>	Statistical Models in Actuarial Science	3
<a href="#">STAT 5756</a>	Statistical Models for Life Contingencies	3

In addition, the student must pass the first actuarial science exam. Note that the capstone requirement and the four math/stat electives are **is** included in, not separate from, this list of courses.

When selecting a 3000-level statistics course to satisfy the major requirements, it is recommended that students pursuing an Actuarial Science emphasis select Stat 3117.

### Algebra/Discrete Mathematics Emphasis Area

Required courses:

<a href="#">MATH 5105</a>	Modern Algebra I	3
<a href="#">MATH 5106</a>	Modern Algebra II	3
or <a href="#">MATH 6105</a>	Finite Fields And Applications	
<a href="#">MATH 5107</a>	Combinatorics And Graph Theory (Satisfies Capstone requirement)	3
<a href="#">MATH 5108</a>	Linear Algebra II	3
<a href="#">STAT 5643</a>	Probability And Statistics	3
Select one of the following:		3
<a href="#">STAT 5644</a>	Mathematical Statistics	3
<a href="#">COMP SCI 2200</a>	Theory of Computer Science	3

<a href="#">COMP SCI 3200</a>	Introduction To Numerical Methods	3
<a href="#">COMP SCI 5200</a>	Analysis Of Algorithms	3

## Computational Mathematics Emphasis Area

Required courses:

<a href="#">STAT 5353</a>	Statistical Data Analysis (Satisfies Capstone requirement)	3
<a href="#">STAT 5346</a>	Regression Analysis	3
<a href="#">COMP SCI 1575</a>	Data Structures	3
<a href="#">COMP SCI 3200</a>	Introduction To Numerical Methods	3
Select three of the following:		
<a href="#">MATH 5302</a>	Intermediate Differential Equations	3
<a href="#">MATH 5325</a>	Partial Differential Equations	3
<a href="#">MATH 5603</a>	Methods of Applied Mathematics	3
<a href="#">MATH 5604</a>	Introduction to Numerical Methods for Differential Equations	3
Select one of the following:		3
<a href="#">COMP SCI 5201</a>	Object-Oriented Numerical Modeling I	3
<a href="#">COMP SCI 5402</a>	Introduction to Data Mining	3
<a href="#">MECH ENG 5139</a>	Computational Fluid Dynamics	3
<a href="#">AERO ENG 5139</a>	Computational Fluid Dynamics	3
<a href="#">MECH ENG 5212</a>	Introduction to Finite Element Analysis	3
<a href="#">AERO ENG 5212</a>	Introduction to Finite Element Analysis	3
<a href="#">MECH ENG 5830</a>	Applied Computational Methods	3
<a href="#">AERO ENG 5830</a>	Applied Computational Methods	3

## Applied Analysis Emphasis Area

Required:

<a href="#">COMP SCI 3200</a>	Introduction To Numerical Methods	3
and two of groups 3, 4, and 5 under Mathematics and Statistics electives (plus the Capstone requirement) must be satisfied,		
and choose Technical Electives and Free Electives to satisfy one of the following two options:		

## Engineering Option

Required courses:

<a href="#">CIV ENG 2200</a>	Statics	3
<a href="#">CIV ENG 2210</a>	Mechanics Of Materials	3
Select one of the following:		
<a href="#">MECH ENG 2350</a>	Engineering Mechanics-Dynamics	
<a href="#">MECH ENG 2360</a>	Dynamics	3
Select three of the following:		9
Courses, which have any of the listed courses as prerequisites, may also be used to fulfill this requirement.		

<a href="#">AERO ENG 3613</a>	Aerospace Mechanics I	3
<a href="#">AERO ENG 5313</a>	Intermediate Dynamics of Mechanical and Aerospace Systems	3
<a href="#">AERO ENG 5614</a>	Spaceflight Mechanics	3
<a href="#">CHEM ENG 2100</a>	Chemical Engineering Material & Energy Balances	4
<a href="#">CHEM ENG 2110</a>	Chemical Engineering Thermodynamics I	3
<a href="#">ELEC ENG 2800</a>	Electrical Circuits	3
<a href="#">MECH ENG 3313</a>	Machine Dynamics	3
<a href="#">MECH ENG 2519</a>	Thermodynamics	3
or <a href="#">MECH ENG 2527</a>	Thermal Analysis	
<a href="#">MECH ENG 5131</a>	Intermediate Thermofluid Mechanics *	3
<a href="#">NUC ENG 3103</a>	Interactions Of Radiation With Matter	3
<a href="#">NUC ENG 4203</a>	Reactor Physics I	3
<a href="#">PET ENG 4621</a>	Fundamentals Of Petroleum Reservoir Simulation	3
<a href="#">CIV ENG 3330</a>	Engineering Fluid Mechanics	3
or <a href="#">NUC ENG 3221</a>	Reactor Fluid Mechanics	
or <a href="#">MECH ENG 3131</a>	Thermofluid Mechanics I	
<a href="#">CIV ENG 5207</a>	Computer Methods of Structural Analysis	3
<a href="#">CIV ENG 5333</a>	Intermediate Hydraulic Engineering	3
<b>ELEC ENG 5370</b>	<b>Course ELEC ENG 5370 Not Found</b>	<b>3</b>
<a href="#">MECH ENG 5307</a>	Vibrations I	3
<a href="#">MECH ENG 5211</a>	Introduction To Continuum Mechanics	3
<a href="#">MECH ENG 5234</a>	Stability of Engineering Structures *	3
<a href="#">MECH ENG 5254</a>	Variational Formulations Of Mechanics Problems	3
<a href="#">GEO ENG 4115</a>	Statistical Methods in Geology and Engineering	3
<a href="#">GEOPHYS 3221</a>	Potential Field Theory	3

\*

Courses with an asterisk (\*) are co-listed in more than one department.

## Physics Option

Required courses:

<del>PHYSICS 2311</del>	<del>Modern Physics I</del>	<del>3</del>
<b>PHYSICS 3311</b>	<b>Course PHYSICS 3311 Not Found</b>	<b>3</b>
<del>And take at least nine additional hours of physics courses at the 2000 level or above.</del>		<del>9</del>
<a href="#">PHYSICS 2305</a>	<a href="#">Introduction To Modern Physics</a>	<a href="#">3</a>
<a href="#">And take at least twelve additional hours of physics courses at the 2000 level or above.</a>		<a href="#">12</a>

Note that the requirements for a minor in physics will be satisfied with this option.

## Secondary Education Emphasis Area

You may earn a B.S. degree in applied mathematics from Missouri S&T and certification to teach at the secondary level in the schools of

Missouri with this emphasis area program. This program can be completed in four academic years.

Students interested in this emphasis area should consult with the advisor for mathematics education majors in the mathematics and statistics department.

In order to successfully complete this emphasis area, students must attain at least a 3.0 GPA in all mathematics, statistics, and education courses as required by the Missouri Department of Elementary and Secondary Education for teacher certification. Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet these GPA requirements to be accepted into the program. Students must also meet all requirements listed on the teacher education website. Students who do not meet all the teacher certification requirements will not be eligible for the secondary education emphasis area, even if they have completed all coursework.

A degree in this emphasis area requires 120 ~~128~~ credit hours. The required courses and a sample four-year program are provided below. (A minimum grade of "C" is required by the department in all mathematics and statistics courses counted toward this degree. No course may be used to satisfy more than one degree requirement, except as otherwise noted.)

<b>Freshman Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MATH 1101</a>	1	<a href="#">MATH 1215</a> or <a href="#">1221</a>	4
<a href="#">MATH 1214</a> or <a href="#">1211</a>	<u>4</u>	<del>BIO SCI 1113</del>	<del>3</del>
OR		<del>BIO SCI 1219 or CHEM 1319 (Science Lab Requirement)<sup>1</sup></del>	<del>4</del>
<del>MATH 1210</del> & <del>MATH 1211</del>	-	<a href="#">EDUC 1164</a>	2
<del>CHEM 1100</del>	<del>4</del>	<a href="#">EDUC 1174</a>	2
<a href="#">MATH 1208</a>		<a href="#">PHYSICS 1135</a>	<u>4</u>
<a href="#">ENGLISH 1120</a>	3	<a href="#">PSYCH 1101</a>	3
<a href="#">HISTORY 1300</a> or <a href="#">1310</a>	3		
<a href="#">EDUC 1040</a>	2		
<a href="#">EDUC 1104</a>	1		
	14		15
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MATH 2222</a>	4	<a href="#">MATH 3304</a>	3
<a href="#">MATH 3108</a>	3	<a href="#">MATH 3109</a>	3
<a href="#">COMP SCI 1500</a>	3	<a href="#">ENGLISH 1160</a>	3
<del>PHYSICS 1135</del>	<del>4</del>	<del>PHYSICS 2135</del>	<del>4</del>
<a href="#">PHYSICS 2135</a>	<u>4</u>	<a href="#">PSYCH 3310</a>	3
<a href="#">SP&amp;M S 1185</a>	3	<a href="#">STAT 3113, or 3115, or 3117</a>	<u>3</u>
	17		15
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MATH 4209</a>	3	<a href="#">MATH 4211</a>	3
<del>STAT 3113, or 3115, or 3117</del>	<del>3</del>	<a href="#">MATH 4530</a>	3

<a href="#">ECON 1100</a> or <a href="#">1200</a>	3	<a href="#">EDUC 3280</a>	3
<a href="#">ENGLISH 3170</a>	3	<a href="#">EDUC 3340</a>	3
<a href="#">EDUC 3216</a>	3	<del>Fine-Art-Elective<sup>2</sup></del>	<del>3</del>
<a href="#">EDUC 3298</a>	1	<a href="#">PSYCH 2300</a> or <a href="#">EDUC 2102</a>	3
<a href="#">POL SCI 1200</a>	<u>3</u>		
	16		15
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
Electives-Math or Stat <sup>1</sup>	6	<a href="#">EDUC 4298</a> & <a href="#">EDUC 4299</a> <sup>3</sup>	13
<a href="#">PSYCH 4310</a> or <a href="#">EDUC 2310</a>	3		
<del>POL SCI 1200</del>	<del>3</del>		
<del>Literature</del>	<del>3</del>		
<del>Electives<sup>6</sup></del>	<del>3</del>		
<del>Electives<sup>2</sup></del>	<del>6</del>		
	15		13
Total Credits: 120			

<sup>1</sup> Any two three-hour courses from the following list with the approval of the mathematics education advisor. [MATH 5105](#), [MATH 5106](#), [MATH 5107](#), [MATH 5108](#), [MATH 5215](#), [MATH 5222](#), [MATH 5302](#), [MATH 5325](#), [MATH 5351](#), [MATH 5483](#), [MATH 5585](#), [STAT 5643](#), [STAT 5644](#), [STAT 5346](#), [STAT 5353](#), [COMP SCI 3200](#), [COMP SCI 5201](#), [COMP SCI 5202](#), [MATH 5737](#).

<sup>2</sup> Sufficient free electives to earn a minimum of 120 credit hours.

<sup>3</sup> Student Teaching satisfies the capstone requirement for students completing this emphasis area.

<sup>4</sup> Any two three-hour courses from the following list with the approval of the mathematics education advisor. ~~MATH 5105, MATH 5106, MATH 5107, MATH 5108, MATH 5215, MATH 5222, MATH 5302, MATH 5325, MATH 5351, MATH 5483, MATH 5585, STAT 5643, STAT 5644, STAT 5346, STAT 5353, COMP SCI 3200, COMP SCI 5201, COMP SCI 5202, MATH 5737.~~

<sup>5</sup> ~~COMP SCI 1570%7C if not transferred in will require COMP SCI 1580%7C, requiring one extra credit hour which will count either towards technical electives or free electives:~~

<sup>6</sup> ~~Sufficient free electives to earn a minimum of 128 credit hours:~~

## Data Science and Statistics Emphasis Area

Required courses:

<a href="#">STAT 4210</a>	<del>Course STAT 4210 Not Found</del>	<u>3</u>
<a href="#">STAT 5643</a>	Probability And Statistics	3
<a href="#">STAT 5644</a>	Mathematical Statistics	3
<a href="#">STAT 5346</a>	Regression Analysis <sup>2</sup>	3
<a href="#">STAT 5353</a>	Statistical Data Analysis (Satisfies Capstone requirement) <sup>1</sup>	3

Select one of the following:		6
<a href="#">STAT 5260</a>	Statistical Data Analysis Using SAS	3
<a href="#">STAT 5814</a>	Applied Time Series Analysis	3
or another approved computational statistics course		
Complete the following CS courses (in addition to those required for all Applied Mathematics majors):		
<a href="#">COMP SCI 1200</a>	Discrete Mathematics for Computer Science <sup>2</sup>	3
<a href="#">COMP SCI 1575</a>	Data Structures <sup>2</sup>	3
<a href="#">COMP SCI 1585</a>	Data Structures Laboratory <sup>2</sup>	1
<a href="#">COMP SCI 2300</a>	File Structures and Introduction to Database Systems <sup>2</sup>	3
<a href="#">COMP SCI 2500</a>	Algorithms <sup>2</sup>	3
and one of the following two courses:		
<a href="#">COMP SCI 5400</a>	Introduction To Artificial Intelligence <sup>2</sup>	3
<a href="#">COMP SCI 5402</a>	Introduction to Data Mining <sup>2</sup>	3

1

Satisfies Capstone requirement.

2

Satisfies the requirements for a minor in Computer Science (when combined with [COMP SCI 1500](#), [COMP SCI 1570](#), and [COMP SCI 1580](#) which are required for all Applied Mathematics majors).

### Justification for request

These changes reduce the Applied Mathematics degree from 128 credit hours to 120 credit hours without reducing the mathematical and statistical integrity of the degree program. They also clean up the degree to reduce the need for common sub/waiver forms (particularly those involving our students double majoring in math along with either Comp Sci or Physics). It cleans up our Calculus I requirement to match what is being done in other degree programs. It also ensures alignment with up-to-date state requirements for the secondary education emphasis.

The more substantive change is to the old Statistics emphasis area, which is being renamed to Data Science and Statistics. The approval from the state is attached, with lengthy justification for the change. We are including a new course, STAT 4210, as a required course in this emphasis area, and a separate CC form is pending to get this permanent course number. Our current plan is to offer STAT 4210 every spring, and in addition to being required for the emphasis area, this will be a very appropriate course for students wishing to complete a mathematics minor. We expect this to be a very popular emphasis area and are excited about the growth potential it brings to our department.

### Supporting Documents

[MS&T PC July 2021.pdf](#)

[Program Change \(PC\) Form BS Applied Math.pdf](#)

### Course Reviewer Comments

**tibbettsmg (04/13/22 12:13 pm):** corrected physics option to 12 hrs per email from PRunnion on 4.12.22. MR

Key: 142

## Program Change Request

Date Submitted: 04/05/22 4:45 pm

Viewing: **BIO SC-BA : Biological Sciences BA**

File: 146.32

Last approved: 06/10/21 4:06 pm

Last edit: 04/11/22 11:55 am

Changes proposed by: shannonk

Catalog Pages Using this Program

[Biological Sciences](#)

Start Term

Fall ~~2022~~ 2021

Program Code

BIO SC-BA

Department

Biological Sciences

Title

Biological Sciences BA

## Program Requirements and Description

### In Workflow

1. **RBIOLSCI Chair**
2. **CCC Secretary**
3. **Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. **Faculty Senate Chair**
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/05/22 4:45 pm  
David Duvernell (duvernell):  
Approved for  
RBIOLSCI Chair
2. 04/11/22 11:55 am  
Marita Raper (tibbettsmg):  
Approved for CCC Secretary
3. 04/18/22 4:06 pm  
Katie Shannon (shannonk):  
Approved for  
Sciences DSCC Chair
4. 04/20/22 2:27 pm  
Marita Raper (tibbettsmg):  
Approved for  
Pending CCC Agenda post
5. 05/03/22 9:34 am  
Marita Raper (tibbettsmg):  
Approved for CCC

Meeting Agenda  
 6. 05/03/22 9:38 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

## History

1. Aug 1, 2014 by  
Katie Shannon  
(shannonk)
2. Jul 14, 2015 by  
pantaleoa
3. Oct 7, 2016 by  
Katie Shannon  
(shannonk)
4. Jun 28, 2017 by  
Katie Shannon  
(shannonk)
5. Nov 14, 2017 by  
Katie Shannon  
(shannonk)
6. Jun 18, 2018 by  
Katie Shannon  
(shannonk)
7. Jul 1, 2020 by Katie  
Shannon  
(shannonk)
8. Feb 3, 2021 by  
Katie Shannon  
(shannonk)
9. Jun 10, 2021 by  
Katie Shannon  
(shannonk)

## Bachelor of Arts Biological Sciences Degree Requirements

Specific requirements for the B.A. degree in biological sciences include a minimum of 120 semester hours of credit, including 30 hours of biology core courses. A "C" or better is required for all Biological Science courses.

Core Courses		
<a href="#">BIO SCI 1201</a>	Biological Sciences Freshman Seminar	1
<a href="#">BIO SCI 1113</a>	General Biology	3

or <a href="#">BIO SCI 1213</a>	Principles of Biology	
<a href="#">BIO SCI 1219</a>	General Biology Lab	1
<a href="#">BIO SCI 1223</a>	Biodiversity	3
<a href="#">BIO SCI 1229</a>	Biodiversity Lab	1
<a href="#">BIO SCI 2213</a>	Cell Biology	3
<a href="#">BIO SCI 2219</a>	Cell Biology Laboratory	1
<a href="#">BIO SCI 2223</a>	General Genetics	3
<a href="#">BIO SCI 2263</a>	Ecology	3
<a href="#">BIO SCI 3233</a>	Evolution	3
<a href="#">BIO SCI 4010</a>	Seminar	1
Advanced courses, 2000 level or higher (at least one with laboratory and one 3000 or 4000 level)		9
Chemistry		
<a href="#">CHEM 1310</a> & <a href="#">CHEM 1319</a> & <a href="#">CHEM 1320</a> & <a href="#">CHEM 1100</a>	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	9
<a href="#">CHEM 2210</a> & <a href="#">CHEM 2220</a>	Organic Chemistry I and Organic Chemistry II	6
Mathematics & Physical Science		
Various courses in mathematics, physics, and/or geology chosen in consultation with academic advisor. (Note: Proficiency in College Algebra must be demonstrated by a grade of "C" or better in a College Algebra course or by examination)		9
Computer Science/Statistics (Select one of the following:)		3-4
<a href="#">COMP SCI 1570</a> & <a href="#">COMP SCI 1580</a>	Introduction To C++ Programming and Introduction To Programming Laboratory	
or <a href="#">COMP SCI 1971</a> & <a href="#">COMP SCI 1981</a>	Introduction To Programming Methodology and Programming Methodology Laboratory	
<a href="#">STAT 3111</a>	Statistical Tools For Decision Making	
<a href="#">STAT 3425</a>	Introduction to Biostatistics	4
General Requirements for BA		
English Composition		6
<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	
One additional composition course		
Western Civilizations		6
<a href="#">HISTORY 1100</a>	Early Western Civilization	
<a href="#">HISTORY 1200</a>	Modern Western Civilization	
Foreign Language (three semesters of a foreign language)		12
Humanities (including one class in each of literature, philosophy, and fine arts)		12
Social Sciences (including classes in two of the following three subjects: economics, political science, psychology)		12

**Elective credits:** In consultation with his or her advisor, each student will elect sufficient additional courses to complete a minimum of

120 credit hours.

## Bachelor of Arts Biological Sciences Pre-Medicine Emphasis Area Degree Requirements

The student will fulfill the requirements for a bachelor of arts in biological sciences as outlined above. The following classes are also required:

<a href="#">CHEM 2219</a> & <a href="#">CHEM 2229</a>	Organic Chemistry I Lab and Organic Chemistry II Lab	2
2 semesters of Physics and labs:		8
<a href="#">PHYSICS 1145</a>	College Physics I	
or <a href="#">PHYSICS 1135</a>	Engineering Physics I	
<a href="#">PHYSICS 2145</a>	College Physics II	
or <a href="#">PHYSICS 2135</a>	Engineering Physics II	

The following classes are highly recommended:

<a href="#">BIO SCI 3333</a>	Human Anatomy and Physiology I	3
<a href="#">BIO SCI 3339</a>	Human Anatomy Physiology I Lab	1
<a href="#">BIO SCI 3343</a>	Human Anatomy and Physiology II	3
<a href="#">BIO SCI 3349</a>	Human Anatomy and Physiology II Laboratory	1
<a href="#">CHEM 4610</a>	General Biochemistry	3
<a href="#">PREMED 3010</a>	<a href="#">Communication Workshop for the Pre-Health Student</a>	<u>1</u>

## Bachelor of Arts Biological Sciences Secondary Education Emphasis Area Degree Requirements

You may earn a B.A. degree in biological sciences from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with this emphasis area. This program can be completed in four academic years, and student teaching is arranged with public schools anywhere in the state.

Students interested in this emphasis area should consult with the advisor for biological sciences education majors in the biological sciences department.

In order to successfully complete this emphasis area, students must attain at least a 3.0 GPA average for all biology courses and professional education courses required by the Missouri Department of Elementary and Secondary Education for teacher certification. Students must also meet all requirements listed under the teacher education website including passing the state-required assessments.

A degree in this emphasis area requires 131 credit hours. The required courses are provided below. A minimum grade of "C" is required by the department in all biological sciences courses counted toward this degree.

Humanities: 18 semester hours

<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
or <a href="#">ENGLISH 3560</a>	Technical Writing	
<a href="#">SP&amp;M S 1185</a>	Principles Of Speech	3
At least one course in each of the following: Literature, Philosophy and Fine Arts		9
Social Sciences: 15 semester hours		
<a href="#">HISTORY 3530</a>	History of Science	3
<a href="#">HISTORY 1100</a>	Early Western Civilization	3
<a href="#">HISTORY 1200</a>	Modern Western Civilization	3
<a href="#">POL SCI 1200</a>	American Government	3
<a href="#">PSYCH 1101</a>	General Psychology	3
Mathematics/Physical Science: 9 semester hours		
<a href="#">MATH 1103</a>	Fundamentals Of Algebra	3
<a href="#">PHYSICS 1145</a>	College Physics I	3
or <a href="#">PHYSICS 1505</a>	Introductory Astronomy	
<a href="#">GEOLOGY 1110</a>	Physical And Environmental Geology	3
Computer Science/Statistics: 3 semester hours		
3 semester hours of Computer Science or Statistics		3
Chemistry: 17 semester hours		
<a href="#">CHEM 1310</a> & <a href="#">CHEM 1319</a> & <a href="#">CHEM 1320</a> & <a href="#">CHEM 1100</a>	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	9
<a href="#">CHEM 2210</a> & <a href="#">CHEM 2220</a>	Organic Chemistry I and Organic Chemistry II	6
Biological Sciences: 27 semester hours		
<a href="#">BIO SCI 1201</a>	Biological Sciences Freshman Seminar	1
<a href="#">BIO SCI 1213</a>	Principles of Biology	3
or <a href="#">BIO SCI 1113</a>	General Biology	
<a href="#">BIO SCI 1219</a>	General Biology Lab	1
<a href="#">BIO SCI 1223</a> & <a href="#">BIO SCI 1229</a>	Biodiversity and Biodiversity Lab	4
<a href="#">BIO SCI 1173</a>	Introduction to Environmental Sciences	3
<a href="#">BIO SCI 2213</a> & <a href="#">BIO SCI 2219</a>	Cell Biology and Cell Biology Laboratory	4
<a href="#">BIO SCI 2223</a>	General Genetics	3
<a href="#">BIO SCI 2263</a>	Ecology	3
<a href="#">BIO SCI 3233</a>	Evolution	3
<a href="#">BIO SCI 4010</a>	Seminar	1

Education: 42 semester hours

<a href="#">EDUC 1040</a>	Perspectives In Education	2
<a href="#">EDUC 1104</a>	Teacher Field Experience I	1
<a href="#">EDUC 1164</a>	Teacher Field Experience II	2
<a href="#">EDUC 1174</a>	School Organization and Administration For Teachers	2
<a href="#">EDUC 2310</a>	Education Of The Exceptional Child	3
<a href="#">EDUC 3216</a>	Instructional Literacy in the Content Area	3
<a href="#">EDUC 3280</a>	Instructional Strategies in the Content Area	3
<a href="#">EDUC 3298</a>	Teacher Field Experience III	1
<a href="#">EDUC 3340</a>	Assessment of Student Learning	3
<a href="#">EDUC 4298</a>	Student Teaching Seminar	1
<a href="#">EDUC 4299</a>	Student Teaching	12
<a href="#">ENGLISH 3170</a>	Teaching And Supervising Reading and Writing	3
<a href="#">PSYCH 2300/EDUC 2102</a>	Educational Psychology	3
<a href="#">PSYCH 3310</a>	Developmental Psychology	3

## Justification for request

Number of Physics hours now 8 total, not 8-10. Added PREMED 3010 to recommended courses

## Supporting Documents

## Course Reviewer Comments

**tibbettsmg (04/11/22 11:55 am):** updated effective term to FS22. MR

Key: 146

## Program Change Request

Date Submitted: 04/05/22 4:50 pm

Viewing: **BIO SC-BS : Biological Sciences BS**

File: 147.20

Last approved: 02/03/21 10:51 am

Last edit: 04/05/22 4:50 pm

Changes proposed by: shannonk

Catalog Pages Using this Program

[Biological Sciences](#)

Start Term

Fall ~~2021~~ 2022

Program Code

BIO SC-BS

Department

Biological Sciences

Title

Biological Sciences BS

### Program Requirements and Description

### In Workflow

1. **RBIOLSCI Chair**
2. **CCC Secretary**
3. **Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. **Faculty Senate Chair**
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/06/22 8:02 am  
David Duvernell (duvernell):  
Approved for  
RBIOLSCI Chair
2. 04/12/22 11:41 am  
Marita Raper (tibbettsmg):  
Approved for CCC  
Secretary
3. 04/18/22 4:06 pm  
Katie Shannon (shannonk):  
Approved for  
Sciences DSCC  
Chair
4. 04/20/22 2:31 pm  
Marita Raper (tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:34 am  
Marita Raper (tibbettsmg):  
Approved for CCC

Meeting Agenda  
 6. 05/03/22 9:39 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

## History

1. Aug 1, 2014 by  
 Katie Shannon  
 (shannonk)
2. Feb 1, 2016 by  
 Ilene Morgan  
 (imorgan)
3. Jun 18, 2018 by  
 Katie Shannon  
 (shannonk)
4. Jan 30, 2020 by  
 Katie Shannon  
 (shannonk)
5. Apr 28, 2020 by  
 Katie Shannon  
 (shannonk)
6. Feb 3, 2021 by  
 Katie Shannon  
 (shannonk)

## Bachelor of Science Biological Sciences Degree Requirements

A minimum of 124 credit hours is required for a Bachelor of Science degree in Biological Science.

A minimum grade of "C" is required for each Biological Science course used to fulfill the B.S. degree requirements.

These requirements for the B.S. degree are in addition to credit that is received for basic ROTC.

The Biological Science B.S. degree must include 48 semester hours of biological sciences course work, to include:

<a href="#">BIO SCI 1201</a>	Biological Sciences Freshman Seminar	1
<a href="#">BIO SCI 1113</a>	General Biology	3
or <a href="#">BIO SCI 1213</a>	Principles of Biology	
<a href="#">BIO SCI 1219</a>	General Biology Lab	1
<a href="#">BIO SCI 1223</a>	Biodiversity	3
<a href="#">BIO SCI 1229</a>	Biodiversity Lab	1

<a href="#">BIO SCI 2213</a>	Cell Biology	3
<a href="#">BIO SCI 2219</a>	Cell Biology Laboratory	1
<a href="#">BIO SCI 2223</a>	General Genetics	3
<a href="#">BIO SCI 2263</a>	Ecology	3
<a href="#">BIO SCI 3233</a>	Evolution	3
<a href="#">BIO SCI 4010</a>	Seminar	1
Advanced biological sciences or approved course work in other departments for a total of 48 credit hours of biology-related classes to include at least one laboratory course from the following:		25
<a href="#">BIO SCI 3319</a>	Microbiology Lab	
or <a href="#">BIO SCI 3339</a>	Human Anatomy Physiology I Lab	
or <a href="#">BIO SCI 3349</a>	Human Anatomy and Physiology II Laboratory	
or <a href="#">BIO SCI 4329</a>	Molecular Genetics Laboratory	
<del>19 semester hours of chemistry to include general chemistry</del>		<del>19</del>
<u>17 semester hours of chemistry to include general chemistry</u>		<u>17</u>
<a href="#">CHEM 1310</a> & <a href="#">CHEM 1319</a> & <a href="#">CHEM 1320</a> & <a href="#">CHEM 1100</a>	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	
<a href="#">CHEM 2210</a> & <a href="#">CHEM 2219</a> & <a href="#">CHEM 2220</a> & <a href="#">CHEM 2229</a>	Organic Chemistry I and Organic Chemistry I Lab and Organic Chemistry II and Organic Chemistry II Lab	
2 semesters of College (Engineering) Physics and labs		8
<a href="#">PHYSICS 1145</a>	College Physics I	
or <a href="#">PHYSICS 1135</a>	Engineering Physics I	
<a href="#">PHYSICS 2145</a>	College Physics II	
or <a href="#">PHYSICS 2135</a>	Engineering Physics II	
Math and Statistics		8
<del>MATH 1208</del>	<del>Calculus With Analytic Geometry I</del>	
or <del>MATH 1214</del>	<del>Calculus I</del>	
or <del>MATH 1212</del>	<del>Survey of Calculus</del>	
<a href="#">STAT 3425</a>	Introduction to Biostatistics	4
<u><a href="#">MATH 1211</a></u>	<u><a href="#">Calculus I-B</a></u>	<u>4</u>
or <u><a href="#">MATH 1212</a></u>	<u><a href="#">Survey of Calculus</a></u>	
or <u><a href="#">MATH 1214</a></u>	<u><a href="#">Calculus I</a></u>	
12 semester hours of humanities, excluding foreign language, and to include:		12
<a href="#">ENGLISH 1120</a> & <a href="#">ENGLISH 1160</a>	Exposition And Argumentation and Writing And Research (entering students will normally take ENGLISH 1120 either semester of the first year)	
9 hours of social sciences, to include		9

<a href="#">HISTORY 1200</a>	Modern Western Civilization (or equivalent)
or <a href="#">HISTORY 1300</a>	American History To 1877
or <a href="#">HISTORY 1310</a>	American History Since 1877
or <a href="#">POL SCI 1200</a>	American Government
Total Credits	110

**Elective credits:** In consultation with his or her advisor, each student will elect sufficient additional courses to complete a minimum of 124 credit hours.

#### Justification for request

Total Chemistry hours changed to 17 in 2020 but not reflected in description. Removed Math 1208 and added Math 1211, total Math hours now 8 instead of 8-9

Supporting Documents

Course Reviewer Comments

Key: 147

## Program Change Request

Date Submitted: 04/18/22 4:32 pm

Viewing: **CHEM-BS : Chemistry BS**

File: 16.36

Last approved: 06/10/21 4:07 pm

Last edit: 04/22/22 2:36 pm

Changes proposed by: tschuman

Catalog Pages Using this Program

[Chemistry](#)

Start Term

Fall ~~2022~~ 2021

Program Code

CHEM-BS

Department

Chemistry

Title

Chemistry BS

### Program Requirements and Description

### In Workflow

1. **RCHEMIST Chair**
2. **CCC Secretary**
3. **Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. **Faculty Senate Chair**
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/07/22 9:41 am  
Rainer Glaser  
(GlaserR): Rollback to Initiator
2. 04/08/22 8:27 am  
Rainer Glaser  
(GlaserR):  
Approved for  
RCHEMIST Chair
3. 04/13/22 3:16 pm  
Marita Raper  
(tibbettsmg):  
Rollback to Initiator
4. 04/18/22 5:14 pm  
Rainer Glaser  
(GlaserR):  
Approved for  
RCHEMIST Chair
5. 04/19/22 11:09 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
6. 04/22/22 2:36 pm  
Katie Shannon  
(shannonk):

Approved for  
Sciences DSCC  
Chair

7. 04/22/22 2:41 pm

Marita Raper  
(tibbettsmg):

Approved for  
Pending CCC  
Agenda post

8. 05/03/22 9:34 am

Marita Raper  
(tibbettsmg):

Approved for CCC  
Meeting Agenda

9. 05/03/22 9:37 am

Stephen Raper  
(sraper): Approved  
for Campus  
Curricula  
Committee Chair

## History

1. Apr 28, 2014 by  
Thomas Schuman  
(tschuman)
2. Jun 19, 2015 by  
woelk (woelkk)
3. Jun 28, 2017 by  
Thomas Schuman  
(tschuman)
4. May 3, 2018 by  
Thomas Schuman  
(tschuman)
5. Dec 3, 2019 by  
Thomas Schuman  
(tschuman)
6. Sep 2, 2020 by  
Crystal Wilson  
(wilsoncry)
7. Jun 10, 2021 by  
Thomas Schuman  
(tschuman)

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## Bachelor of Science Chemistry

A minimum of 127 credit hours is required for a Bachelor of Science degree in Chemistry and an average of at least two grade points per credit hour must be obtained. These requirements for the B.S. degree are in addition to credit received for algebra, trigonometry, and

basic ROTC.

The Chemistry science curriculum requires nine semester hours in humanities and must include [ENGLISH 1160](#) or [ENGLISH 3560](#) . A minimum of nine semester hours is required in social sciences, including either [HISTORY 1300](#) , [HISTORY 1310](#) , [HISTORY 1200](#) , or [POL SCI 1200](#) . Specific requirements for the bachelor degree are outlined in the sample program listed below.

<b>Freshman Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 1310</a>	4	<a href="#">CHEM 1320</a>	3
<a href="#">CHEM 1319</a>	1	<a href="#">CHEM 1510</a>	2
<a href="#">CHEM 1100</a>	1	<a href="#">MATH 1215</a>	4
<a href="#">CHEM 1110</a>	1	Electives	6
<a href="#">MATH 1214</a> or <a href="#">1210</a> and <a href="#">1211</a>	4		
<a href="#">ENGLISH 1120</a>	3		
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3		
	17		15
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2210</a>	3	<a href="#">CHEM 2220</a>	3
<a href="#">CHEM 2219</a>	1	<a href="#">CHEM 2229</a>	1
<a href="#">MATH 2222</a>	4	<a href="#">CHEM 3410</a>	3
<a href="#">PHYSICS 1135</a>	4	<a href="#">PHYSICS 2135</a>	4
Electives	4	Select one of the following sequences:	3
		<a href="#">COMP SCI 1972</a> & <a href="#">COMP SCI 1982</a>	
		<a href="#">IS&amp;T 1561</a> or <a href="#">COMP SCI 1500</a>	
		<a href="#">COMP SCI 1971</a> & <a href="#">COMP SCI 1981</a>	
	16		14
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2310</a>	3	<a href="#">CHEM 2319</a>	1
<a href="#">CHEM 2510</a>	4	<a href="#">CHEM 2320</a>	3
<a href="#">CHEM 3430</a>	3	<a href="#">CHEM 3420</a>	3
<a href="#">STAT 3113</a> or <a href="#">3115</a>	3	<a href="#">CHEM 3459</a>	2
<a href="#">ENGLISH 1160</a> or <a href="#">3560</a>	3	Electives	6
	16		15
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>

<a href="#">CHEM 3510</a>	4	<a href="#">CHEM 4010</a>	1
<del>CHEM 4010</del> or 4099	4	<a href="#">CHEM 4297</a>	3
<a href="#">CHEM 4099</a>	<u>1-3</u>	Electives	12
<a href="#">CHEM 4610</a>	3		
<a href="#">CHEM 4810</a>	3		
Electives	7		
	18-20		16
Total Credits: 127-129			

**Notes:**

**Grade Requirements:** A minimum grade of "C" is required for each chemistry course counted towards the degree.

**ROTC:** Basic ROTC may be taken in the freshman and sophomore year, but does not count towards the degree.

**Electives:** There are thirty-three (33) hours of electives, not to include Math courses that are prerequisite to calculus. Twelve (12) hours must be 2xxx, 3xxx, 4xxx (or 5xxx or higher with permission) level in chemistry, to include up to a maximum ~~chemistry or another technical area with permission~~ of 9 credit hours of Chem 4099, or another technical area with permission of department. Six (6) elective hours must be completed in the social sciences. Six (6) elective hours are required in the humanities.

## Chemistry

### Biochemistry Emphasis Area

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 1310</a>	4	<a href="#">CHEM 1320</a>	3
<a href="#">CHEM 1319</a>	1	<a href="#">CHEM 1510</a>	2
<a href="#">CHEM 1100</a>	1	<a href="#">MATH 1215</a>	4
<a href="#">CHEM 1110</a>	1	<a href="#">BIO SCI 2213</a>	3
<a href="#">ENGLISH 1120</a>	3	<a href="#">BIO SCI 2219</a>	1
<a href="#">MATH 1214</a> or <a href="#">1210</a> <i>and</i> <a href="#">1211</a>	4	Electives	3
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3		
	17		16
Sophomore Year			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 2210</a>	3	<a href="#">CHEM 2220</a>	3
<a href="#">CHEM 2219</a>	1	<a href="#">CHEM 2229</a>	1
<a href="#">MATH 2222</a>	4	<a href="#">CHEM 3410</a>	3
<a href="#">PHYSICS 1135</a>	4	<a href="#">PHYSICS 2135</a>	4
Electives	4	Select one of the following sequences:	3

[COMP SCI 1972](#)  
& [COMP SCI 1982](#)

[IS&T 1561](#) or [COMP SCI 1500](#)

[COMP SCI 1971](#)  
& [COMP SCI 1981](#)

16

14

**Junior Year**

First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 2310</a>	3	<a href="#">CHEM 2319</a>	1
<a href="#">CHEM 3430</a>	3	<a href="#">CHEM 2320</a>	3
<a href="#">CHEM 4610</a>	3	<a href="#">CHEM 2510</a>	4
<a href="#">CHEM 4619</a>	2	<a href="#">CHEM 3420</a>	3
<a href="#">STAT 3113</a> or <a href="#">3115</a>	3	<a href="#">CHEM 3459</a>	2
<a href="#">ENGLISH 1160</a> or <a href="#">3560</a>	3	<a href="#">CHEM 4620</a>	3
	17		16
<b>Senior Year</b>			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 3510</a>	4	<a href="#">CHEM 4010</a>	1
<del>CHEM 4010</del> or <del>4099</del>	<del>4</del>	<a href="#">CHEM 4297</a>	3
<a href="#">CHEM 4099</a>	<u>1-3</u>	Electives	12
<a href="#">CHEM 4810</a>	3		
<a href="#">CHEM 4630</a>	3		
Electives	4		
	15-17		16
Total Credits: 127-129			

**Notes:**

**Grade Requirements:** A minimum grade of "C" is required for each chemistry course counted towards the degree.

**ROTC:** Basic ROTC may be taken in the freshman and sophomore years, but does not count towards the degree.

**Electives:** There are twenty-one (21) hours of electives, ~~not to include up include Math courses that are prerequisite~~ to twelve (12) hours must be 2xxx, 3xxx, 4xxx (or 5xxx or higher with permission) level in chemistry, to include up to a maximum of 9 credit hours of Chem 4099 or another technical area with permission of department, not to include Math courses that are prerequisite to calculus. Six (6) elective hours must be completed in the social sciences. Six (6) elective hours are required in the humanities.

**Polymer & Coatings Science Emphasis Area**

<b>Freshman Year</b>			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 1310</a>	4	<a href="#">CHEM 1320</a>	3

<a href="#">CHEM 1319</a>	1	<a href="#">CHEM 1510</a>	2
<a href="#">CHEM 1100</a>	1	<a href="#">MATH 1215</a>	4
<a href="#">CHEM 1110</a>	1	Electives	6
<a href="#">MATH 1214</a> or <a href="#">1210</a> and <a href="#">1211</a>	4		
<a href="#">ENGLISH 1120</a>	3		
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3		
	17		15
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2210</a>	3	<a href="#">CHEM 2220</a>	3
<a href="#">CHEM 2219</a>	1	<a href="#">CHEM 2229</a>	1
<a href="#">MATH 2222</a>	4	<a href="#">CHEM 2319</a>	1
<a href="#">PHYSICS 1135</a>	4	<a href="#">CHEM 3410</a>	3
<a href="#">CHEM 2310</a>	3	<a href="#">PHYSICS 2135</a>	4
		Select one of the following sequences:	3
		<a href="#">COMP SCI 1972</a> & <a href="#">COMP SCI 1982</a>	
		<a href="#">IS&amp;T 1561</a> or <a href="#">COMP SCI 1500</a>	
		<a href="#">COMP SCI 1971</a> & <a href="#">COMP SCI 1981</a>	
	15		15
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2510</a>	4	<a href="#">CHEM 2320</a>	3
<a href="#">CHEM 3430</a>	3	<a href="#">CHEM 3420</a>	3
<a href="#">CHEM 4810</a>	3	<a href="#">CHEM 3459</a>	2
<a href="#">STAT 3113</a> or <a href="#">3115</a>	3	<a href="#">CHEM 4099</a>	1-3
<a href="#">ENGLISH 1160</a> or <a href="#">3560</a>	3	<a href="#">CHEM 4819</a>	1
		<a href="#">CHEM 4850</a>	3
		Elective	3
	16		16-18
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 3510</a>	4	<a href="#">CHEM 4297</a>	3
<a href="#">CHEM 4610</a>	3	<a href="#">CHEM 4099</a>	1-3
<a href="#">PHYSICS 4523</a>	3	Electives	12
<a href="#">CHEM 4099</a>	1-3		

Electives	6	
	17-19	16-18
Total Credits: 127-133		

**Notes:**

**Grade Requirements:** A minimum grade of "C" is required for each chemistry course counted towards the degree.

**ROTC:** Basic ROTC may be taken in the freshman and sophomore years, but does not count towards the degree.

**Undergraduate Research:** The undergraduate research CHEM 4099 must be done in Polymers and Coatings Science.

**Electives:** There are twenty-three (23) hours of electives, including twelve (12) hours must be 2xxx, 3xxx, 4xxx (or 5xxx or higher with permission) level in chemistry, not to include up include Math courses that are prerequisite to a maximum of 9 credit hours of Chem 4099 or another technical area with permission of department, not to include Math courses that are prerequisite to calculus. Six (6) elective hours must be completed in the social sciences. Six (6) elective hours are required in the humanities.

## Pre-medicine Emphasis Area

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 1310</a>	4	<a href="#">CHEM 1320</a>	3
<a href="#">CHEM 1319</a>	1	<a href="#">CHEM 1510</a>	2
<a href="#">CHEM 1100</a>	1	<a href="#">MATH 1215</a>	4
<a href="#">CHEM 1110</a>	1	<a href="#">BIO SCI 1113</a>	3
<a href="#">MATH 1214</a> or <a href="#">1210</a> and <a href="#">1211</a>	4	<a href="#">BIO SCI 1219</a>	1
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3	<a href="#">ENGLISH 1120</a>	3
	14		16
Sophomore Year			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 2210</a>	3	<a href="#">CHEM 2220</a>	3
<a href="#">CHEM 2219</a>	1	<a href="#">CHEM 2229</a>	1
<a href="#">MATH 2222</a>	4	<a href="#">CHEM 3410</a>	3
<a href="#">PHYSICS 1135</a>	4	<a href="#">PHYSICS 2135</a>	4
<a href="#">BIO SCI 2213</a>	3	Select one of the following sequences:	3
<a href="#">BIO SCI 2219</a>	1	<a href="#">COMP SCI 1972</a> & <a href="#">COMP SCI 1982</a>	
		<a href="#">IS&amp;T 1561</a> or <a href="#">COMP SCI 1500</a>	
		<a href="#">COMP SCI 1971</a> & <a href="#">COMP SCI 1981</a>	
	16		14
Junior Year			

First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 3430</a>	3	<a href="#">CHEM 2510</a>	4
<a href="#">CHEM 4610</a>	3	<a href="#">CHEM 3420</a>	3
<a href="#">CHEM 4619</a>	2	<a href="#">CHEM 4620</a>	3
<a href="#">CHEM 4010</a> or <a href="#">4099</a>	1	<a href="#">STAT 3113</a> or <a href="#">3115</a>	3
<a href="#">BIO SCI 3333</a>	3	<a href="#">BIO SCI 3343</a>	3
<del><a href="#">BIO SCI 3339</a></del>	<del>4</del>	<del><a href="#">BIO SCI 3349</a></del>	<del>4</del>
<a href="#">BIO SCI 3359</a>	<u>1</u>		
<a href="#">ENGLISH 1160</a> or <a href="#">3560</a>	3		
	16		16
<b>Senior Year</b>			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 2310</a>	3	<a href="#">CHEM 2319</a>	1
<a href="#">CHEM 3510</a>	4	<a href="#">CHEM 2320</a>	3
<a href="#">CHEM 3459</a>	2	<a href="#">CHEM 4099</a>	1
<a href="#">CHEM 4010</a> or <a href="#">4099</a>	1	<a href="#">CHEM 4297</a>	3
<a href="#">CHEM 4810</a>	3	Electives	9
Electives	4		
	17		17
Total Credits: 126			

**Notes:**

**Grade Requirements:** A minimum grade of "C" is required for each chemistry course counted towards the degree.

**ROTC:** Basic ROTC may be taken in the freshman and sophomore years, but does not count towards the degree.

**Electives:** There are eleven (11) hours of electives, not to include Math courses that are prerequisite to [calculus](#). ~~calculus. Three (3) elective hours must be completed in the social sciences.~~ Up to five (5) credit hours may be taken of Chem 4099. Three (3) elective hours must be completed in the social sciences. Three (3) elective hours are required in the humanities.

**Justification for request**

We are increasing the amount of research hours in chemistry 4099 that will count toward undergraduate degree credit from 6 to maximum of 9, which includes a change to the course description of chem 4099.

**Supporting Documents****Course Reviewer Comments**

**glaserr (04/07/22 9:41 am):** Rollback: Start date FS22

**tibbettsmg (04/13/22 3:16 pm):** Rollback: rollback per email. MR

**shannonk (04/22/22 2:36 pm):** BIO SCI 3339 and 3349 were removed since they are no longer offered. BIO SCI 3359, Physiology lab, added instead.

## Program Change Request

Date Submitted: 04/04/22 1:33 pm

Viewing: **CMP SC-BS : Computer Science BS**

File: 28.67

Last approved: 10/01/21 2:58 pm

Last edit: 04/04/22 1:33 pm

Changes proposed by: zhupe

Catalog Pages Using this Program

[Computer Science](#)

Start Term

[Fall 2022](#) [Spring 2024](#)

Program Code

CMP SC-BS

Department

Computer Science

Title

Computer Science BS

### Program Requirements and Description

### In Workflow

1. [RCOMPSCI Chair](#)
2. [CCC Secretary](#)
3. [Engineering DSCC Chair](#)
4. [Pending CCC Agenda post](#)
5. [CCC Meeting Agenda](#)
6. [Campus Curricula Committee Chair](#)
7. [FS Meeting Agenda](#)
8. [Faculty Senate Chair](#)
9. [Registrar](#)
10. [Evie Sherlock](#)

### Approval Path

1. 04/04/22 1:48 pm  
Samuel Frimpong (frimpong):  
Approved for RCOMPSCI Chair
2. 04/05/22 9:55 am  
Marita Raper (tibbetmsg):  
Approved for CCC Secretary
3. 04/19/22 9:04 am  
Stephen Raper (sraper): Approved for Engineering DSCC Chair
4. 04/20/22 2:32 pm  
Marita Raper (tibbetmsg):  
Approved for Pending CCC Agenda post
5. 05/03/22 9:34 am  
Marita Raper (tibbetmsg):  
Approved for CCC Meeting Agenda

6. 05/03/22 9:37 am  
Stephen Raper  
(srafer): Approved  
for Campus  
Curricula  
Committee Chair

## History

1. Aug 5, 2014 by Daniel Tauritz (tauritzd)
2. Aug 13, 2014 by pantaleoa
3. Jun 19, 2015 by Daniel Tauritz (tauritzd)
4. Jul 15, 2015 by pantaleoa
5. Jun 28, 2017 by Daniel Tauritz (tauritzd)
6. Jun 14, 2019 by Daniel Tauritz (tauritzd)
7. Mar 3, 2020 by ershenb
8. Oct 28, 2020 by Marita Raper (tibbetmsg)
9. Oct 1, 2021 by Crystal Wilson (wilsoncry)

For the

~~Bachelor of Science Computer Science Entering first year students desiring to study computer science will be admitted to the Foundational Engineering and Computing Program. They will, however, be permitted, if they wish, to state a computer science preference, which will be used as a consideration for available first year departmental scholarships. The focus of the Foundational Engineering and Computing Program is on enhanced advising and career counseling, with the goal of providing to the student the information necessary to make an informed decision regarding the choice of a major.~~ **Bachelor of Science degree in Computer Science**

For the Bachelor Science, a minimum of Science degree in Computer Science, a minimum of 128 credit hours is required. This requirement is in addition to credit received for algebra, trigonometry, and basic ROTC courses. An average of at least two grade points

per credit hour must be attained. A "C" or better grade must be earned in each computer science course used to fulfill B.S. in computer science degree requirements as well as in [COMP ENG 2210](#) , [COMP ENG 3150](#) , ~~COMP ENG 2210~~ , ~~COMP ENG 3150~~ , and the required ethics elective.

The computer science curriculum requires twelve semester hours in humanities, exclusive of foreign language, and must include [ENGLISH 1160](#) or [ENGLISH 3560](#). A minimum of nine semester hours is required in social sciences, including either [HISTORY 1300](#), [HISTORY 1310](#), [HISTORY 1200](#), or [POL SCI 1200](#). Specific requirements for the bachelor degree are outlined in the sample program listed below.

## Sample Course of Study

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">FR ENG 1100</a>	1	<a href="#">COMP SCI 1200</a>	3
<a href="#">COMP SCI 1500</a> <sup>1</sup>	3	<a href="#">COMP SCI 1570</a>	3
Laboratory Science Elective <sup>2</sup>	5	<a href="#">COMP SCI 1580</a>	1
<a href="#">MATH 1214</a> or <a href="#">1211</a> <sup>3</sup>	4	<a href="#">MATH 1215</a> <sup>4</sup>	4
<a href="#">ENGLISH 1120</a>	3	<a href="#">ENGLISH 1160</a> or <a href="#">3560</a>	3
		Humanities / Social Science Elective <sup>5</sup>	3
	16		17
Sophomore Year			
First Semester	Credits	Second Semester	Credits
<a href="#">COMP SCI 1575</a>	3	<a href="#">COMP SCI 2200</a>	3
<a href="#">COMP SCI 1585</a>	1	<a href="#">COMP SCI 2500</a>	3
<a href="#">COMP ENG 2210</a> <sup>6</sup>	3	<a href="#">PHYSICS 2135</a> <sup>9</sup>	4
<a href="#">PHYSICS 1135</a> <sup>7</sup>	4	<a href="#">COMP ENG 3150</a> <sup>6</sup>	3
Statistics Elective <sup>8</sup>	3	<del>Literature Elective</del> <sup>10</sup>	<del>3</del>
Humanities / Social Science Elective <sup>5</sup>	3	<a href="#">COMP SCI 3800</a>	<u>3</u>
	17		16
Junior Year			
First Semester	Credits	Second Semester	Credits
<a href="#">COMP SCI 2300</a>	3	<a href="#">COMP SCI 3500</a>	3
<del>COMP SCI 3800</del>	<del>3</del>	<del>COMP SCI 3610</del>	<del>3</del>
<a href="#">COMP SCI 3610</a>	<u>3</u>	Cmp Sc Elective <sup>12, 16</sup>	3
<a href="#">MATH 3108</a>	3	<a href="#">Cmp Sc Elective</a> <sup>12, 16</sup>	<u>3</u>
Humanities / Social Science Elective <sup>5</sup>	3	Sci/Eng Elective <sup>13</sup>	3
Ethics Elective <sup>11</sup>	3	<a href="#">SP&amp;M S 1185</a> <sup>14</sup>	3
	15		15
Senior Year			
First Semester	Credits	Second Semester	Credits

<a href="#">COMP SCI 4090</a>	3	<a href="#">COMP SCI 4091</a>	3
<a href="#">COMP SCI 4610</a>	3	Cmp Sc Electives <sup>12, 16</sup>	3
Cmp Sc Electives <sup>12, 16</sup>	6	Humanities / Social Science Elective <sup>5</sup>	3
Sci/Eng Elective <sup>13</sup>	3	Free Elective <sup>15,16</sup>	8
	15		17
Total Credits: 128			

1

Or [COMP SCI 1971](#) and [COMP SCI 1981](#). May be waived in lieu of a score of 4 or 5 on the AP Computer Science A exam.

2

An approved science lecture-laboratory course pair totaling at least four credit hours. The laboratory is mandatory in all cases. The approved course pairs are: [CHEM 1310](#) and [CHEM 1319](#); [PHYSICS 1505](#) and [PHYSICS 1509](#); [PHYSICS 1605](#) and [PHYSICS 1609](#); [GEOLOGY 1120](#) and [GEOLOGY 1129](#); [BIO SCI 1113](#) and [BIO SCI 1219](#); [BIO SCI 1223](#) and [BIO SCI 1229](#); [BIO SCI 2213](#) and [BIO SCI 2219](#); [BIO SCI 2353](#) and [BIO SCI 2359](#); [BIO SCI 2383](#) and [BIO SCI 2389](#).

3

Or [MATH 1208](#).

4

Or [MATH 1221](#).

5

Any nine credit hours of social science courses and three credit hours of humanities courses on the approved lists maintained on the computer science website. One course must satisfy the Missouri and U.S. Constitution requirement. [COMP SCI 4700](#) may be counted as a Social Science elective.

6

Laboratory not required.

7

Or both [PHYSICS 1111](#) and [PHYSICS 1119](#).

8

One of [STAT 3113](#), [STAT 3115](#), [STAT 3117](#), or [STAT 5643](#).

9

Or both [PHYSICS 2111](#) and [PHYSICS 2119](#).

10

One literature course on the approved list maintained on the computer science website.

11

One of [PHILOS 3225](#), [PHILOS 3235](#), [PHILOS 4340](#), or [PHILOS 4368](#).

12

Fifteen hours of elective COMP SCI courses excluding [COMP SCI 2002](#), [COMP SCI 4700](#), COMP SCI 2001 - Domain Exploration and Innovation Methods, COMP SCI 3001 - Skill Development for Entrepreneurs and Innovators, COMP SCI 4001 - Advanced Domain Exploration and Innovation Methods, COMP SCI 4001 - Interpersonal Dynamics for Entrepreneurs and Innovators, and all COMP SCI x9xx courses. At least nine hours must be 5000-level or higher. At least nine hours must be lecture courses.

13

Any six hours chosen from departments that offer a degree associated with either the Discipline Specific Curricula Committee for Sciences or the Discipline Specific Curricula Committee for Engineering, excluding Computer Science. The following courses are also excluded: all 1000-level MATH courses, all STAT courses below 4000-level, all 11xx-level Physics courses, [PHYSICS 2111](#), [PHYSICS 2119](#), [PHYSICS 2135](#), and [PHYSICS 2145](#).

14

[SP&M S 1185](#) or [SP&M S 3245](#) or [THEATRE 3245](#) or one of the two complete four-course sequences in Advanced ROTC ([MIL ARMY 3250](#), [MIL ARMY 3500](#), [MIL ARMY 4250](#), and [MIL ARMY 4500](#); or [MIL AIR 3110](#), [MIL AIR 3120](#), [MIL AIR 4110](#) and [MIL AIR 4120](#)).

15

Courses chosen from any discipline so that 128 hours are completed. These and only these courses may be taken pass/fail and only one course may be taken

pass/fail each semester. The following courses are excluded: all 1000-level MATH courses, all STAT courses below 4000-level, all 11xx-level Physics courses, [PHYSICS 2111](#), [PHYSICS 2119](#), [PHYSICS 2135](#), [PHYSICS 2145](#), any COMP SCI x9xx courses, and the first two years of ROTC.

16

[COMP SCI 4010](#) can be counted as Computer Science Elective or Free Elective, limited to three times.

### Justification for request

1. Adding Math 1211 as requested by campus.
2. Removing reference to Freshmen Engineering.
3. All 1000-level Physics courses exclude in Sci/Eng elective and free elective which includes PHYSICS 1505 Introductory Astronomy. We change 1000-level Physics courses to 11##-level Physics courses to exclude Physics 1111, 1119, 1135, and 1145.
4. We have more HSS than needed in the degree, and too few CS electives (only 12 credits for CS electives). We have English course (English 1160 or 3560) (3credits), 12 credits for Humanity&Social Science, one ethics elective (3 credits), one speech (3 credits), and one literature (3 credits). Our humanity requirement already permits literature courses. We currently exceed the 21-hour requirement, with our 24 hours of HSS. So we eliminating literature (3 credits) and adding 3 more credits to CS elective.
5. Move up CS3800. The prerequisites of CS3800 are Comp Sci 1575 and Comp Eng 2210. Also move up CS3610 to keep that pre-req chain moving.

Supporting Documents

Course Reviewer Comments

Key: 28

## Program Change Request

Date Submitted: 04/08/22 10:21 am

Viewing: **EDUC-BS : Education BS**

File: 344.27

Last approved: 04/07/22 3:51 pm

Last edit: 04/13/22 1:49 pm

Changes proposed by: bakm75

Catalog Pages Using this Program

[Education](#)

Start Term

Fall 2022

Program Code

EDUC-BS

Department

Teacher Education and Certification

Title

Education BS

### Program Requirements and Description

### In Workflow

1. **REDUCATION**  
Chair
2. **CCC Secretary**
3. **Social Sciences**  
DSCC Chair
4. **Pending CCC**  
Agenda post
5. **CCC Meeting**  
Agenda
6. **Campus Curricula**  
Committee Chair
7. **FS Meeting**  
Agenda
8. **Faculty Senate**  
Chair
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/08/22 10:22 am  
Beth Kania-Gosche  
(bkaniagosche):  
Approved for  
REDUCATION  
Chair
2. 04/13/22 1:49 pm  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
3. 04/13/22 3:39 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for Social  
Sciences DSCC  
Chair
4. 04/20/22 2:37 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:34 am  
Marita Raper

(tibbettsmg):  
 Approved for CCC  
 Meeting Agenda  
 6. 05/03/22 9:37 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

## History

1. Jun 10, 2021 by  
 Beth Kania-Gosche  
 (bkaniagosche)
2. Aug 3, 2021 by  
 Crystal Wilson  
 (wilsoncry)
3. Apr 7, 2022 by Beth  
 Kania-Gosche  
 (bkaniagosche)

## Bachelor of Science in Education

### Overview

The Department of Teacher Education and Certification offers a degree in education with options for emphases in early childhood (birth-grade 3), elementary (grades 1-6), middle school language arts, middle school mathematics, middle school science, or middle school social science. The educational studies emphasis area offers an option for students working in informal contexts outside of public schools. ~~science.~~

All students take the core education curriculum; these courses include multiple field experience courses which requires them to observe and teach lessons in schools. The final semester of the program is student teaching when students are immersed full time in a school setting for 16 weeks, except for the educational studies emphasis area. ~~weeks.~~

The Missouri Department of Elementary and Secondary Education approves the curricula of certification ~~these~~ programs. Any substitutions for content or education coursework must be approved by the Department of Teacher Education and Certification. Students intended to earn a teaching certificate must also pass the Missouri Content Assessment and meet the GPA requirements to ~~te~~ be eligible for ~~for~~ student teaching ~~teaching~~ and certification.

### Program Learning Outcomes

The program learning outcomes are the Missouri Teacher Standards. These are the same standards principals use to evaluate practicing teachers in Missouri. These outcomes are assessed throughout the program and in the student teaching experience; students must demonstrate evidence of satisfactory progress on each outcome.

Missouri S&T education program graduates will . . .

1. Create learning experiences that make the central concepts, structures, and tools of inquiry of the discipline(s) of subject matter meaningful and engaging for all students.
2. Provide learning opportunities that are adapted to diverse learners and support the intellectual, social, and personal development of all students.
3. Develop, implement, and evaluate curriculum based upon student, district and state standards
4. Use a variety of instructional strategies and resources to encourage students' critical thinking, problem solving, and performance skills
5. Create a learning environment that encourages active engagement in learning, positive social interaction, and self-motivation.
6. Model effective verbal, nonverbal, and media communication techniques with students, colleagues and families to foster active inquiry, collaboration, and supportive interaction in the classroom.
7. Monitor the performance of each student through formative and summative assessment strategies, and devises instruction to enable students to grow and develop, making adequate academic progress.
8. Continually assess the effects of choices and actions on others and seek out opportunities to grow professionally.
9. Have effective working relationships with students, parents, school colleagues, and community members

## Core Curriculum

<a href="#">EDUC 1040</a>	Perspectives In Education	2
<a href="#">EDUC 1104</a>	Teacher Field Experience I	1
<a href="#">EDUC 1164</a>	Teacher Field Experience II	2
<a href="#">EDUC 1174</a>	School Organization and Administration For Teachers	2
<a href="#">EDUC 2102</a>	Educational Psychology	3
or <a href="#">PSYCH 2300</a>	Educational Psychology	
<a href="#">EDUC 2310</a>	Education Of The Exceptional Child	3
or <a href="#">PSYCH 4310</a>	Psychology Of The Exceptional Child	
<a href="#">EDUC 3216</a>	Instructional Literacy in the Content Area	3
<a href="#">EDUC 3340</a>	Assessment of Student Learning	3
<a href="#">PSYCH 3310</a>	Developmental Psychology	3
<a href="#">EDUC 4298</a>	Student Teaching Seminar	1
<a href="#">EDUC 4299</a>	Student Teaching	12
Total Credits		35

### Emphasis Area: Educational Studies

This emphasis is for students who want to work in educational settings outside of K-12 public schools. Potential career settings include nonprofit organizations, state agencies, childcare, museums, youth development, and more. This flexible emphasis area is designed to combine educational theories with applications in informal educational environments and does not result in teacher certification.

Students must complete the general education requirements and the education core curriculum (35 credit hours) with the exception of student teaching, which should be substituted with additional education courses aligned to the student's career goals. Each student will

elect sufficient additional courses to complete a minimum of 120 credit hours; these may be in other disciplines. As this degree does not result in certification, students are not required to meet Missouri Department of Elementary and Secondary Education requirements.

Students must complete the following general education requirements. Substitutions are allowable but must be approved by the department chair.

Students must take the following nine hours of coursework:

<u>ENGLISH 1120</u>	<u>Exposition And Argumentation</u>	<u>3</u>
<u>ENGLISH 1160</u>	<u>Writing And Research</u>	<u>3</u>
<u>SP&amp;M S 1185</u>	<u>Principles Of Speech</u>	<u>3</u>

**Math and Sciences.** Students must take **18 hours of math and science courses**, including at least one in biological science and one in the physical sciences and at least one math course. In addition to these requirements, students may count STAT 1115, up to 3 hours from psychology classes, and up to 3 hours from history of science and technology classes (HISTORY 2510, HISTORY 3510, or HISTORY 3530), but may not use them to satisfy another requirement.

**Humanities.** Students must complete **9 hours in humanities** with at least one course from each of the following: literature, philosophy, and fine arts (Art, Music, or Theater Appreciation).

**Social Sciences.** Students must complete **12 hours in social science courses**. Students must take at least one course in two of these four areas: economics, history, political science, and psychology.

One of the following courses must be taken to satisfy the requirement of the state of Missouri (the "Williams Law"); this course may count toward fulfilling the social sciences requirement.

<u>HISTORY 1200</u>	<u>Modern Western Civilization</u>	<u>3</u>
<u>HISTORY 1300</u>	<u>American History To 1877</u>	<u>3</u>
<u>HISTORY 1310</u>	<u>American History Since 1877</u>	<u>3</u>
<u>POL SCI 1200</u>	<u>American Government</u>	<u>3</u>

~~**Early Childhood An early childhood certificate allows students to teach children from birth through third grade in the state of Missouri. Students must take the following general education courses. Substitutions must be approved by the department chair. Students must also take a literature course.**~~ **Emphasis Area: Early Childhood**

An early childhood certificate allows students to teach children from birth through third grade in the state of Missouri.

<u>EDUC 1055</u>	Introduction to Early Childhood Education	3
<u>EDUC 1221</u>	Health, Nutrition, and Safety in Early Childhood Education	3
<u>EDUC 1820</u>	Early Childhood Program Management	3
<u>EDUC 2401</u>	School, Family, and Community Partnerships	3
<u>EDUC 2440</u>	Observation and Assessment of Young Children	3
<u>EDUC 3203</u>	Introduction to STEM Education	3
<u>EDUC 3215</u>	Teaching Reading in Elementary and Early Childhood Settings	3
<u>EDUC 3217</u>	Analysis and Correction of Reading Difficulties	3

<a href="#">EDUC 3218</a>	Language Arts for Elementary and Early Childhood Teachers	3
<a href="#">EDUC 3220</a>	Teaching Science in the Elementary and Early Childhood Classroom	3
<a href="#">EDUC 3221</a>	Methods of Teaching Math	3
<a href="#">EDUC 3430</a>	Diverse Literature for Children	3
<a href="#">EDUC 3530</a>	Teaching Integrated Social Studies and Humanities	3
<a href="#">EDUC 3211</a>	Child Development	3
Total Credits		42

Students must take the following general education courses. Substitutions must be approved by the department chair.

<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
<a href="#">SP&amp;M S 1185</a>	Principles Of Speech	3
<a href="#">PHILOS 1105</a>	Self and World: Introduction To Philosophy	3
<a href="#">PSYCH 1101</a>	General Psychology	3
<a href="#">MATH 1120</a>	College Algebra	5
or <a href="#">MATH 1140</a>	College Algebra	
<a href="#">POL SCI 1200</a>	American Government	3
<a href="#">HISTORY 2110</a>	World Regional Geography	3
<a href="#">HISTORY 1300</a>	American History To 1877	3
or <a href="#">HISTORY 1310</a>	American History Since 1877	
<a href="#">BIO SCI 1113</a>	General Biology	3
<a href="#">BIO SCI 1219</a>	General Biology Lab	1
<a href="#">PHYSICS 1145</a>	College Physics I	3-4
or <a href="#">PHYSICS 1505</a>	Introductory Astronomy	
<a href="#">GEOLOGY 1110</a>	Physical And Environmental Geology	3
or <a href="#">GEOLOGY 1120</a>	Evolution Of The Earth	
<a href="#">CHEM 1100</a>	Introduction To Laboratory Safety & Hazardous Materials	1
Total Credits		40-41

Students must also take a literature course.

**~~Elementary An elementary certificate allows students to teach grades 1-6 in the state of Missouri. Students must take the following general education courses. Substitutions must be approved by the department chair.~~ Emphasis Area: Elementary**

An elementary certificate allows students to teach grades 1-6 in the state of Missouri.

<a href="#">EDUC 3215</a>	Teaching Reading in Elementary and Early Childhood Settings	3
<a href="#">EDUC 3217</a>	Analysis and Correction of Reading Difficulties	3
<a href="#">EDUC 3218</a>	Language Arts for Elementary and Early Childhood Teachers	3

<a href="#">EDUC 3220</a>	Teaching Science in the Elementary and Early Childhood Classroom	3
<a href="#">EDUC 3221</a>	Methods of Teaching Math	3
<a href="#">EDUC 3222</a>	Geometric Concepts for Elementary Teachers	3
<a href="#">EDUC 3203</a>	Introduction to STEM Education	3
<a href="#">EDUC 3430</a>	Diverse Literature for Children	3
<a href="#">EDUC 3530</a>	Teaching Integrated Social Studies and Humanities	3
Total Credits		27

Students must take the following general education courses. Substitutions must be approved by the department chair.

<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
<a href="#">SP&amp;M S 1185</a>	Principles Of Speech	3
<a href="#">ART 1180</a>	Art Appreciation	3
or <a href="#">MUSIC 1150</a>	Music Understanding And Appreciation	
or <a href="#">THEATRE 1190</a>	Theatre via Video	
<a href="#">HISTORY 1300</a>	American History To 1877	3
or <a href="#">HISTORY 1310</a>	American History Since 1877	
<a href="#">PHILOS 1105</a>	Self and World: Introduction To Philosophy	3
<a href="#">PSYCH 1101</a>	General Psychology	3
<a href="#">ECON 1100</a>	Principles Of Microeconomics	3
or <a href="#">ECON 1200</a>	Principles Of Macroeconomics	
<a href="#">HISTORY 2110</a>	World Regional Geography	3
<a href="#">POL SCI 1200</a>	American Government	3
<a href="#">HISTORY 1100</a>	Early Western Civilization	3
<a href="#">HISTORY 1200</a>	Modern Western Civilization	3
<a href="#">MATH 1103</a>	Fundamentals Of Algebra	3
or <a href="#">MATH 1120</a>	College Algebra	
<a href="#">PHYSICS 1505</a>	Introductory Astronomy	3
or <a href="#">PHYSICS 1145</a>	College Physics I	
<a href="#">BIO SCI 1223</a>	Biodiversity	3
<a href="#">BIO SCI 1229</a>	Biodiversity Lab	1
<a href="#">MATH 1140</a>	College Algebra	3
or <a href="#">MATH 1160</a>	Trigonometry	
<a href="#">GEOLOGY 1110</a>	Physical And Environmental Geology	3
or <a href="#">CHEM 1310</a> & <a href="#">CHEM 1319</a>	General Chemistry I and General Chemistry Laboratory	
Total Credits		52

## Emphasis Area: Middle School Language Arts

An middle school certificate allows graduates to teach grades 5-9 in the designated subject area.

<a href="#">EDUC 3215</a>	Teaching Reading in Elementary and Early Childhood Settings	3
<a href="#">EDUC 3280</a>	Instructional Strategies in the Content Area	3
<a href="#">EDUC 3335</a>	Curriculum And Instruction Of The Middle School	3
<a href="#">ENGLISH 3170</a>	Teaching And Supervising Reading and Writing	3
<a href="#">ENGLISH 2171</a>	Fiction Writing	3
or <a href="#">ENGLISH 2172</a>	Creative Nonfiction Writing	
<a href="#">ENGLISH 3302</a>	History And Structure Of The English Language	3
<a href="#">ENGLISH 3303</a>	The Grammatical Structure of English	3
or <a href="#">ENGLISH 3301</a>	A Linguistic Study Of Modern English	
<a href="#">ENGLISH 1170</a>	Creative Writing	3
<a href="#">EDUC 3298</a>	Teacher Field Experience III	1
Total Credits		25

Students must also take four literature electives, of which three must be 2000 or 3000 level. Students in this program are eligible for both a literature minor and a creative writing minor.

Students must take the following general education courses.

<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
<a href="#">SP&amp;M S 1185</a>	Principles Of Speech	3
<a href="#">ART 1180</a>	Art Appreciation	3
or <a href="#">MUSIC 1150</a>	Music Understanding And Appreciation	
or <a href="#">THEATRE 1190</a>	Theatre via Video	
<a href="#">ENGLISH 1221</a>	American Literature: 1600 To 1865	3
or <a href="#">ENGLISH 1222</a>	American Literature: 1865 To Present	
<a href="#">PHILOS 1105</a>	Self and World: Introduction To Philosophy	3
or <a href="#">PHILOS 1115</a>	Logic and Reasoning: An Introduction	
<a href="#">HISTORY 1100</a>	Early Western Civilization	3
or <a href="#">HISTORY 1200</a>	Modern Western Civilization	
or <a href="#">HISTORY 1300</a>	American History To 1877	
or <a href="#">HISTORY 1310</a>	American History Since 1877	
<a href="#">POL SCI 1200</a>	American Government	3
<a href="#">ECON 1200</a>	Principles Of Macroeconomics	3
or <a href="#">ECON 1100</a>	Principles Of Microeconomics	
<a href="#">MATH 1103</a>	Fundamentals Of Algebra	3

<a href="#">BIO SCI 1113</a>	General Biology	3
<a href="#">BIO SCI 1219</a>	General Biology Lab	1
<a href="#">GEOLOGY 1110</a>	Physical And Environmental Geology	3
or <a href="#">GEOLOGY 1120</a>	Evolution Of The Earth	
or <a href="#">PHYSICS 1505</a>	Introductory Astronomy	
or <a href="#">PHYSICS 1605</a>	Environmental Physics I	
or <a href="#">CHEM 1310</a>	General Chemistry I	
<a href="#">IS&amp;T 1551</a>	Implementing Information Systems: User Perspective	3
or <a href="#">COMP SCI 1500</a>	Computational Problem Solving	
Total Credits		40

Students must also take an additional humanity elective and three free elective hours.

### Emphasis Area: ~~EmphasisArea:~~ **Middle School Mathematics**

An middle school certificate allows graduates to teach grades 5-9 in the designated subject area.

<a href="#">ENGLISH 3170</a>	Teaching And Supervising Reading and Writing	3
<a href="#">EDUC 3280</a>	Instructional Strategies in the Content Area	3
<a href="#">EDUC 3335</a>	Curriculum And Instruction Of The Middle School	3
<a href="#">EDUC 3298</a>	Teacher Field Experience III	1
<a href="#">EDUC 3203</a>	Introduction to STEM Education	3
<a href="#">EDUC 3222</a>	Geometric Concepts for Elementary Teachers	3
<a href="#">MATH 1103</a>	Fundamentals Of Algebra	3
<a href="#">MATH 1120</a>	College Algebra	5
or <a href="#">MATH 1140</a>	College Algebra	
<a href="#">MATH 1160</a>	Trigonometry	2
<a href="#">MATH 1208</a>	Calculus With Analytic Geometry I	5
or <a href="#">MATH 1214</a>	Calculus I	
or <a href="#">MATH 1210</a>	Calculus I-A	
<a href="#">MATH 1215</a>	Calculus II	4
or <a href="#">MATH 1221</a>	Calculus With Analytic Geometry II	
or <a href="#">MATH 1211</a>	Calculus I-B	
or <a href="#">MATH 1212</a>	Survey of Calculus	
<a href="#">COMP SCI 1500</a>	Computational Problem Solving	3
or <a href="#">IS&amp;T 1551</a>	Implementing Information Systems: User Perspective	
<a href="#">STAT 1115</a>	Statistics For The Social Sciences I	3
or <a href="#">STAT 3113</a>	Applied Engineering Statistics	
or <a href="#">STAT 3115</a>	Engineering Statistics	

Total Credits	41
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Students must take the following general education courses.

<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
<a href="#">SP&amp;M S 1185</a>	Principles Of Speech	3
<a href="#">ART 1180</a>	Art Appreciation	3
or <a href="#">MUSIC 1150</a>	Music Understanding And Appreciation	
or <a href="#">THEATRE 1190</a>	Theatre via Video	
<a href="#">ENGLISH 1221</a>	American Literature: 1600 To 1865	3
or <a href="#">ENGLISH 1222</a>	American Literature: 1865 To Present	
<a href="#">PHILOS 1105</a>	Self and World: Introduction To Philosophy	3
or <a href="#">PHILOS 1115</a>	Logic and Reasoning: An Introduction	
<a href="#">HISTORY 1100</a>	Early Western Civilization	3
or <a href="#">HISTORY 1200</a>	Modern Western Civilization	
or <a href="#">HISTORY 1300</a>	American History To 1877	
or <a href="#">HISTORY 1310</a>	American History Since 1877	
<a href="#">POL SCI 1200</a>	American Government	3
<a href="#">ECON 1200</a>	Principles Of Macroeconomics	3
or <a href="#">ECON 1100</a>	Principles Of Microeconomics	
<a href="#">BIO SCI 1219</a>	General Biology Lab	1
<a href="#">BIO SCI 1113</a>	General Biology	3
<a href="#">GEOLOGY 1110</a>	Physical And Environmental Geology	3
or <a href="#">GEOLOGY 1120</a>	Evolution Of The Earth	
<a href="#">PHYSICS 1505</a>	Introductory Astronomy	3
or <a href="#">PHYSICS 1145</a>	College Physics I	
or <a href="#">CHEM 1310</a>	General Chemistry I	
Total Credits		37

### Emphasis Area: Middle School Science

An middle school certificate allows graduates to teach grades 5-9 in the designated subject area.

<a href="#">ENGLISH 3170</a>	Teaching And Supervising Reading and Writing	3
<a href="#">EDUC 3280</a>	Instructional Strategies in the Content Area	3
<a href="#">EDUC 3335</a>	Curriculum And Instruction Of The Middle School	3
<a href="#">EDUC 3203</a>	Introduction to STEM Education	3
<a href="#">EDUC 3220</a>	Teaching Science in the Elementary and Early Childhood Classroom	3
<a href="#">EDUC 3298</a>	Teacher Field Experience III	1

<a href="#">BIO SCI 1113</a>	General Biology	3
or <a href="#">BIO SCI 1213</a>	Principles of Biology	
<a href="#">BIO SCI 1219</a>	General Biology Lab	1
<a href="#">BIO SCI 1173</a>	Introduction to Environmental Sciences	3
<a href="#">PHYSICS 1505</a>	Introductory Astronomy	3
or <a href="#">PHYSICS 1145</a>	College Physics I	
<a href="#">GEOLOGY 1110</a>	Physical And Environmental Geology	3
<a href="#">GEOLOGY 1120</a>	Evolution Of The Earth	3
<a href="#">HISTORY 3530</a>	History of Science	3
or <a href="#">PHILOS 4345</a>	Philosophy Of Science	
<a href="#">CHEM 1310</a>	General Chemistry I	4
<a href="#">CHEM 1319</a>	General Chemistry Laboratory	1
<a href="#">BIO SCI 2223</a>	General Genetics	3
Total Credits		43

Students must also take the following general education courses.

<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
<a href="#">SP&amp;M S 1185</a>	Principles Of Speech	3
<a href="#">ART 1180</a>	Art Appreciation	3
or <a href="#">MUSIC 1150</a>	Music Understanding And Appreciation	
or <a href="#">THEATRE 1190</a>	Theatre via Video	
<a href="#">ENGLISH 1221</a>	American Literature: 1600 To 1865	3
or <a href="#">ENGLISH 1222</a>	American Literature: 1865 To Present	
<a href="#">PHILOS 1105</a>	Self and World: Introduction To Philosophy	3
or <a href="#">PHILOS 1115</a>	Logic and Reasoning: An Introduction	
<a href="#">HISTORY 1100</a>	Early Western Civilization	3
or <a href="#">HISTORY 1200</a>	Modern Western Civilization	
or <a href="#">HISTORY 1300</a>	American History To 1877	
or <a href="#">HISTORY 1310</a>	American History Since 1877	
<a href="#">POL SCI 1200</a>	American Government	3
<a href="#">ECON 1200</a>	Principles Of Macroeconomics	3
or <a href="#">ECON 1100</a>	Principles Of Microeconomics	
<a href="#">MATH 1103</a>	Fundamentals Of Algebra	3
or <a href="#">MATH 1120</a>	College Algebra	
or <a href="#">MATH 1140</a>	College Algebra	
<a href="#">STAT 1115</a>	Statistics For The Social Sciences I	3

or <a href="#">STAT 3113</a>	Applied Engineering Statistics	
or <a href="#">STAT 3115</a>	Engineering Statistics	
Total Credits		33

Students will also take three hours of humanities elective and three hours of free electives.

### Emphasis Area: ~~EmphasisArea:~~ **Middle School Social Science**

An middle school certificate allows graduates to teach grades 5-9 in the designated subject area.

<a href="#">ENGLISH 3170</a>	Teaching And Supervising Reading and Writing	3
<a href="#">EDUC 3280</a>	Instructional Strategies in the Content Area	3
<a href="#">EDUC 3335</a>	Curriculum And Instruction Of The Middle School	3
<a href="#">EDUC 3530</a>	Teaching Integrated Social Studies and Humanities	3
<a href="#">EDUC 3350</a>	Social Studies In The Elementary School	3
<a href="#">EDUC 3298</a>	Teacher Field Experience III	1
<a href="#">HISTORY 1100</a>	Early Western Civilization	3
or <a href="#">HISTORY 1200</a>	Modern Western Civilization	
<a href="#">HISTORY 1300</a>	American History To 1877	3
or <a href="#">HISTORY 1310</a>	American History Since 1877	
<a href="#">PSYCH 4600</a>	Social Psychology	3
Total Credits		25

Students will also take a DESE-approved American history elective, two DESE-approved world history electives, and one history elective. Students in this program may be eligible for both a history minor and a psychology minor.

<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
<a href="#">SP&amp;M S 1185</a>	Principles Of Speech	3
<a href="#">ART 1180</a>	Art Appreciation	3
or <a href="#">MUSIC 1150</a>	Music Understanding And Appreciation	
or <a href="#">THEATRE 1190</a>	Theatre via Video	
<a href="#">ENGLISH 1221</a>	American Literature: 1600 To 1865	3
or <a href="#">ENGLISH 1222</a>	American Literature: 1865 To Present	
<a href="#">PHILOS 1105</a>	Self and World: Introduction To Philosophy	3
or <a href="#">PHILOS 1115</a>	Logic and Reasoning: An Introduction	
<a href="#">HISTORY 1100</a>	Early Western Civilization	3
or <a href="#">HISTORY 1200</a>	Modern Western Civilization	
or <a href="#">HISTORY 1300</a>	American History To 1877	
or <a href="#">HISTORY 1310</a>	American History Since 1877	
<a href="#">POL SCI 1200</a>	American Government	3

<a href="#">ECON 1200</a>	Principles Of Macroeconomics	3
or <a href="#">ECON 1100</a>	Principles Of Microeconomics	
<a href="#">MATH 1103</a>	Fundamentals Of Algebra	3
or <a href="#">MATH 1120</a>	College Algebra	
or <a href="#">MATH 1140</a>	College Algebra	
<a href="#">BIO SCI 1113</a>	General Biology	3
<a href="#">BIO SCI 1219</a>	General Biology Lab	1
<a href="#">GEOLOGY 1110</a>	Physical And Environmental Geology	3
or <a href="#">GEOLOGY 1120</a>	Evolution Of The Earth	
or <a href="#">PHYSICS 1505</a>	Introductory Astronomy	
or <a href="#">PHYSICS 1605</a>	Environmental Physics I	
or <a href="#">CHEM 1310</a>	General Chemistry I	
<a href="#">IS&amp;T 1551</a>	Implementing Information Systems: User Perspective	3
or <a href="#">COMP SCI 1500</a>	Computational Problem Solving	
Total Credits		40

Students will also take three hours of humanities elective and three hours of free electives.

#### Justification for request

Currently, there is no degree option for students in an education-related field outside of formal K-12 schooling. Students may want to work as educators in nonprofits such as museums or science centers; these positions often involve coordinating summer camps and field trips as well as creating educational content. The expansion of online education with the pandemic has provided more opportunity for online education as well. This emphasis area provides an option for students to obtain educational knowledge and experience with more flexibility than the certification options which are strictly mandated by DESE. Students in this emphasis area can select electives that align with their intended career choices.

#### Supporting Documents

[MST PC October 2021.pdf](#)

[Final Educational Studies Emphasis Program Change \(PC\).docx](#)

[MST PC December 2021.pdf](#)

#### Course Reviewer Comments

**tibbettsmg (04/13/22 1:49 pm):** added SP&M S 1185 to course list per approvals. MR

Key: 344

## Program Change Request

Date Submitted: 04/13/22 12:25 pm

Viewing: **ENGL TC-BS : English & Technical  
Communication BS**

File: 374.13

Last approved: 06/10/21 4:07 pm

Last edit: 04/13/22 1:52 pm

Changes proposed by: reardond

Catalog Pages Using this Program  
[English and Technical Communication](#)

### Start Term

Fall ~~2021~~ 2022

Program Code

ENGL TC-BS

Department

English and Technical Communication

Title

English & Technical Communication BS

### Program Requirements and Description

### In Workflow

1. **REGLISH Chair**
2. **CCC Secretary**
3. **Arts & Humanities  
DSCC Chair**
4. **Pending CCC  
Agenda post**
5. **CCC Meeting  
Agenda**
6. **Campus Curricula  
Committee Chair**
7. **FS Meeting  
Agenda**
8. **Faculty Senate  
Chair**
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/13/22 12:30 pm  
Kristine Swenson  
(kswenson):  
Approved for  
REGLISH Chair
2. 04/13/22 1:53 pm  
Marita Raper  
(tibbetmsg):  
Approved for CCC  
Secretary
3. 04/13/22 1:59 pm  
Petra Dewitt  
(dewitt): Approved  
for Arts &  
Humanities DSCC  
Chair
4. 04/20/22 2:40 pm  
Marita Raper  
(tibbetmsg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:35 am  
Marita Raper  
(tibbetmsg):  
Approved for CCC

Meeting Agenda  
 6. 05/03/22 9:37 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

## History

1. Mar 4, 2021 by  
 Kristine Swenson  
 (kswenson)
2. Jun 10, 2021 by  
 Kristine Swenson  
 (kswenson)

Students must complete a minimum of 120 hours for a Bachelor of Science in English & Technical Communication, and obtain a grade point average of 2.0. These requirements for the B.S. are in addition to credit received for basic ROTC.

Communications. Student must take the following 9 hours of courses:		
<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 2002</a>	Critical Approaches To Literature	3
One writing intensive course out of major OR two writing emphasized courses out of major		3

Math and Sciences. Students must take **18 hours of math and science courses**, including at least one in biological science and one in the physical sciences and at least one math course at the level of college algebra or higher. In addition to these requirements, students may count [STAT 1115](#), up to 3 hours from psychology classes, and up to 3 hours from history of science and technology classes ([HISTORY 2510](#), [HISTORY 3510](#), or [HISTORY 3530](#)), but may not use them to satisfy another requirement.

Humanities. Students must complete **9 hours in humanities** with at least one course from each of the following: literature, philosophy, and fine arts (Art, Music, or Theater Appreciation).

Social Sciences. Students must complete **12 hours in social science courses**. Students must take at least one course in two of these four areas: economics, history, political science, and psychology.

One of the following courses must be taken to satisfy the requirement of the state of Missouri (the "Williams Law"); this course may count toward fulfilling the social sciences requirement		
<a href="#">HISTORY 1200</a>	Modern Western Civilization	3
<a href="#">HISTORY 1300</a>	American History To 1877	3
<a href="#">HISTORY 1310</a>	American History Since 1877	3
<a href="#">POL SCI 1200</a>	American Government	3

**English and Technical Communication.** Students must complete **33 credit hours of courses in ENGLISH and/or TCH COM**. The student must earn a grade of C or better in these required courses.

All students must take the following 9 hours for the major:

<a href="#">ENGLISH 2410</a>	Theory Of Written Communication	3
<a href="#">TCH COM 4410</a>	Theory and Practice of Technical Communication	3
<a href="#">TCH COM 5620</a>	Research Methods in Technical Communication	3

Each student chooses *at least* one of the following **CORE MODULES**, which helps define each student's focus for the degree and provides foundational skills within that focus:

**I. Technical Communication** (12 hours):

<a href="#">TCH COM 1600</a>	Introduction to Technical Communication	3
<a href="#">TCH COM 2540</a>	Layout and Design	3
<a href="#">TCH COM 5510</a>	Technical Editing	3
One of the following:		
<a href="#">TCH COM 3550</a>	Writing for Social Media	3
<a href="#">TCH COM 3580</a>	Business Communication	3
<a href="#">TCH COM 3570</a>	Writing in the Sciences	3
<a href="#">TCH COM 5560</a>	Web-Based Communication	3

**II. Literature** (12 hours):

- One 1000 or 2000 level literature class
- One 2000 or 3000 level literature class with a "media" or "genre" designation
- One 3000 level literature class with a geographical designation
- One 3000 level literature class with a historical or cultural designation

**III. Linguistics** (12 hours):

<a href="#">ENGLISH 3301</a>	A Linguistic Study Of Modern English	3
<a href="#">ENGLISH 3302</a>	History And Structure Of The English Language	3
<a href="#">ENGLISH 3303</a>	The Grammatical Structure of English	3
<a href="#">ENGLISH 3304</a>	Language in Society	3

Students should choose the remaining required hours in E&TC in consultation with their advisor to complete specialized modules and certificates that correspond with their interests and future goals. Specialized modules are generally sets of 3-4 courses that allow students to pursue specialized areas of our degree program. Please refer to E&TC website and/or consult your advisor for a full list of current modules and certificates. Some of these include: Creative Writing, Professional Writing, Game Studies, English Education, Digital Presence Management.

**Electives Credit.** Each student will elect sufficient additional courses to complete a minimum of 120 credit hours, at the discretion of the major adviser. Electives housed in other departments can and should be used to fulfill requirements for interdisciplinary specialized modules and certificates. At least 9 hours of these electives must be at the 3000 or above level, although substitutions may be permitted at the discretion of the major adviser. All electives must accumulate to at least a 2.0 grade point average.

**English Education Certification.** ~~The student will fulfill the general requirements for the bachelor of science degree, the requirements for the ETC major, and the requirements for Missouri certification in the teaching of English including a 3.0 content and professional requirement GPA, and passage of the Missouri Content exam. Missouri S&T allows students to choose their student teaching placement, if the district agrees and a qualified cooperating teacher is available. This program is~~

~~approved by the Missouri Department of Elementary and Secondary Education for initial teacher certification. Students intending to teach in other states are responsible for investigating the reciprocity agreement of that state agency. Contact the Missouri S&T English & Tech Com department for advising. Students preparing for teacher certification should note that the major requirements for English certification are as follows: 1. — ENGLISH 1211, ENGLISH 1212, ENGLISH 1221, ENGLISH 1222. 2. — ENGLISH 2002 3. — Capstone course for major: TCH-COM-4410. 4. — Fifteen hours of course work at the 2000 or 3000 level in English and American literature, including two courses in English Literature; and two American Literature courses, including literature for adolescents. 5. — Six hours of linguistics. 6. — Twelve hours of writing, including a course in the teaching of writing. Six of these hours will also be satisfied by the general education composition requirement for the B.S. degree; three of these hours will also be satisfied by the capstone course. 7. — A minimum of fifteen hours must be at the 3000 level or above.~~ **Graduate Track Pathway to MS in Technical Communication:**

An undergraduate in the Department of English and Technical Communication at Missouri S&T, and select undergraduates in other departments, may opt to apply for the Graduate Track Pathway in Technical Communication (TC). This program allows a student to complete a bachelor's degree and then the MS in Tech Com in less time than if pursuing each degree consecutively. In this program, 9 hours of TC MS coursework may apply to both the BS and MS requirements. The credit hours transferred from their Missouri S&T bachelor's degree to their Technical Communication master's degree may be taken at the lower undergraduate tuition rate.

To be eligible for the GTP, an undergraduate must be one year from completion of their bachelor's degree (excluding the semester in which they are currently enrolled). They must have completed 9 credit hours of any combination of English and TC courses selected from 1160, 1600, 2002, 2410, 2540, 2560, and any 3000 or 4000 level English or TC course at Missouri S&T with at least a 3.50 GPA in those courses and a cumulative GPA of 3.0 or higher.

To be admitted, the student must complete the GTP Admission and Course Approval Form and must have the recommendation of a TC faculty member. Once admitted to the GTP, the student may transfer nine credit hours from their Missouri S&T bachelor's degree to their Technical Communication master's degree. Depending on the bachelor's program, some or all of those hours might also fulfill elective undergraduate categories. These nine hours of shared credit will be charged at the undergraduate tuition rate. The nine hours of shared-credit coursework must be approved by the academic advisor and must be courses approved to be part of the MS curriculum. Taking additional courses for graduate credit beyond these nine hours will require formal application and acceptance to the MS program. Acceptance to the MS program from the GTP is assured so long as the student maintains a 3.0 GPA or higher in TC coursework.

E&TC majors are encouraged to consult with their academic advisor during their sophomore or junior year about preparing for GTP admission.

Justification for request

Supporting Documents

Course Reviewer Comments

**tibbettsmg (04/13/22 1:52 pm):** updated term to FS22. MR

Key: 374

## Program Change Request

Date Submitted: 04/05/22 3:42 pm

Viewing: **GE ENG-BS : Geological Engineering BS**

File: 156.66

Last approved: 10/28/21 10:36 am

Last edit: 04/07/22 11:10 am

Changes proposed by: grotekr

Catalog Pages Using this Program

[Geological Engineering](#)

Start Term

Fall 2022

Program Code

GE ENG-BS

Department

Geosciences and Geological and Petroleum Engineering

Title

Geological Engineering BS

### Program Requirements and Description

### In Workflow

1. RGEOENG Chair
2. CCC Secretary
3. Engineering DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. Evie Sherlock

### Approval Path

1. 04/05/22 3:56 pm  
Jeff Cawfield (jdc):  
Approved for RGEOENG Chair
2. 04/07/22 11:10 am  
Marita Raper (tibbetmsg):  
Approved for CCC Secretary
3. 04/19/22 8:49 am  
Stephen Raper (sraper): Approved for Engineering DSCC Chair
4. 04/20/22 2:41 pm  
Marita Raper (tibbetmsg):  
Approved for Pending CCC Agenda post
5. 05/03/22 9:35 am  
Marita Raper (tibbetmsg):  
Approved for CCC Meeting Agenda
6. 05/03/22 9:37 am

Stephen Raper  
(sraper): Approved  
for Campus  
Curricula  
Committee Chair

## History

1. Mar 18, 2014 by  
Lahne Black (lahne)
2. Nov 18, 2014 by  
pantaleoa
3. Nov 18, 2014 by  
pantaleoa
4. Jul 20, 2015 by  
pantaleoa
5. Feb 27, 2018 by  
Katherine Grote  
(grotekr)
6. Jun 18, 2018 by  
Katherine Grote  
(grotekr)
7. Jun 14, 2019 by  
Katherine Grote  
(grotekr)
8. Mar 3, 2020 by  
ershenb
9. Jul 1, 2020 by  
Leslie Gertsch  
(gertschl)
10. Jun 10, 2021 by  
Sharon Lauck  
(laucks)
11. Oct 28, 2021 by  
Katherine Grote  
(grotekr)

~~Bachelor of Science Geological Engineering Entering freshmen desiring to study geological engineering will be admitted to the Foundational Engineering and Computing Program. They may state a geological engineering preference, which is a consideration for geological engineering programs scholarships. The focus of the Foundational Engineering and Computing Program is on enhanced advising and career counseling, to provide the student with the information necessary to make an informed decision regarding the choice of a major.~~ Bachelor For the bachelor of Science Geological Engineering

For the bachelor of science degree in geological engineering a minimum of ~~of~~ 128 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. The student must maintain at least two grade points per credit hour (grade of C) for all courses taken in geological engineering. Their program of study must contain a minimum of 18 credit hours of course work in the humanities and the social sciences areas, selected as described in the Engineering Degree Requirements section of this catalog. Geological engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade is not required; however, passing this examination is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process.

The geological engineering program at Missouri S&T is characterized by comprehensive understanding of the scientific basics of engineering and innovative application. We focus on solving the problems and meeting the needs of civilization as those are affected by geological materials, structures, or events. The necessary interactions required for this among the various sciences, engineering disciplines, and human professions are emphasized in research, analysis, synthesis, and design. Learning occurs in classroom, laboratory, online, field, and combined modes.

<b>Freshman Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MATH 1214</a> or <a href="#">1211</a> <sup>1</sup>	4	<a href="#">MATH 1215</a> <sup>1</sup>	4
<a href="#">CHEM 1100</a>	1	<a href="#">MECH ENG 1720</a>	3
<a href="#">CHEM 1310</a>	4	<a href="#">PHYSICS 1135</a>	4
<a href="#">CHEM 1319</a>	1	<a href="#">GEO ENG 1150</a> or <a href="#">GEOLOGY 1110</a>	3
<a href="#">ENGLISH 1120</a>	3	Humanities/Soc Sci Elective <sup>a</sup>	3
<a href="#">FR ENG 1100</a>	1		
Humanities/Soc Sci Elective <sup>a</sup>	3		
	17		17
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MATH 2222</a>	4	<a href="#">MATH 3304</a>	3
<a href="#">PHYSICS 2135</a>	4	<a href="#">CIV ENG 2200</a>	3
<a href="#">GEO ENG 3148</a>	3	<a href="#">GEO ENG 2110</a>	1
<a href="#">GEO ENG 3249</a>	3	<a href="#">GEOLOGY 2611</a>	3
Humanities/Soc Sci Elective <sup>a</sup>	3	<a href="#">GEO ENG 3175</a>	3
		Humanities/Soc Sci Elective <sup>a</sup>	3
	17		16
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MECH ENG 2350</a>	2	<a href="#">CIV ENG 3330</a>	3
<a href="#">CIV ENG 2210</a>	3	<a href="#">CIV ENG 3715</a> or <a href="#">MIN ENG 5823</a>	3
<a href="#">GEO ENG 5331</a>	3	<a href="#">GEO ENG 5174</a>	3
<a href="#">GEOLOGY 3310</a>	3	Chemistry/Geochemistry Elective <sup>b</sup>	3
<a href="#">GEOLOGY 3319</a>	1	Technical Elective <sup>c</sup>	3

<a href="#">ECON 1100</a> or <a href="#">1200</a>	3		
	15		15
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">GEO ENG 4010</a>	0.5	<a href="#">GEO ENG 4010</a>	0.5
<a href="#">GEO ENG 5441</a>	3	<del>GEO ENG 4115</del>	<del>3</del>
<a href="#">GEO ENG 5443</a>	3	<a href="#">GEO ENG 5090</a>	3
<a href="#">ENGLISH 3560</a>	3	Geo Eng Elective <sup>e</sup>	3
Geophysics Elective <sup>d</sup>	3	Eng Econ Elective <sup>f</sup>	3
Technical Elective <sup>c</sup>	3	Humanities/Soc Sci Elective <sup>a</sup>	3
		<a href="#">Statistics Elective<sup>h</sup></a>	<u>3</u>
	15.5		15.5
Total Credits: 128			

a

Humanities/Social Sciences Elective: This course sequence must provide both breadth and depth of content and meet requirements specified in the Engineering Degree Requirements section of the current undergraduate catalog. A total of 18 credit hours is required.

b

Chemistry/Geochemistry Elective: Select from chemistry, geochemistry or biology courses as approved by advisor.

c

Technical Elective: Select from advanced courses in science or engineering as approved by advisor.

d

Geophysics Elective: Select from [GEO ENG 5736](#), [GEO ENG 5761](#), or [GEO ENG 5782](#).

e

Geological Engineering Elective: Select from [GEO ENG 5471](#), [GEO ENG 5381](#), [GEO ENG 5556](#), [MIN ENG 5823](#), [PET ENG 2510](#), [PET ENG 3520](#), [CIV ENG 3715](#), [CIV ENG 4729](#), or [CIV ENG 5715](#).

f

Engineering Economics Elective: Select from [ENG MGT 5210](#), [MIN ENG 3512](#), or [PET ENG 4590](#) or both [ENG MGT 1100](#) and [ENG MGT 1210](#).

g

[MATH 1208](#) or [MATH 1211](#) may be substituted for [MATH 1214](#). [MATH 1221](#) may be substituted for [MATH 1215](#).

h

Statistics Elective: Select one course from [GEO ENG 4115](#), [STAT 3113](#), or [STAT 3115](#).

## Geological Engineering Focus Areas

The student uses the following course lists as guidance to satisfy the various elective requirements (chemistry/geochemistry, technical, geophysics, and geological engineering) while focusing preparation for their chosen career specialty. Other courses can be substituted with advisor approval.

### Dual Professional Registration as a Geologist

<a href="#">GEOLOGY 2096</a>	Field Geology	3
<a href="#">GEOLOGY 3410</a>	Introduction To Geochemistry	3
<a href="#">GEOLOGY 3620</a>	Stratigraphy And Sedimentation	3

<a href="#">GEOLOGY 4097</a>	Advanced Field Geology	3
<a href="#">GEOLOGY 4841</a>	Geological Field Studies	3
<a href="#">GEO ENG 5144</a>	Remote Sensing Technology	3

#### Engineering Geology and Geotechnics

<a href="#">GEO ENG 5146</a>	Applications Of Geographic Information Systems	3
<a href="#">GEO ENG 5471</a>	Rock Engineering	3
<a href="#">CIV ENG 3715</a>	Fundamentals of Geotechnical Engineering	3
<a href="#">CIV ENG 4729</a>	Foundation Engineering	3
<a href="#">MIN ENG 5823</a>	Rock Mechanics	3

#### Environmental and Engineering Geophysics

<a href="#">GEO ENG 5144</a>	Remote Sensing Technology	3
<a href="#">GEO ENG 5736</a>	Geophysical Field Methods	3
<a href="#">GEO ENG 5761</a>	Transportation Applications of Geophysics	3
<a href="#">GEO ENG 5782</a>	Environmental and Engineering Geophysics	3
<a href="#">GEOPHYS 4241</a>	Electrical Methods In Geophysics	3
<a href="#">GEOPHYS 4261</a>	Geophysical Instrumentation	1
<a href="#">GEOPHYS 5231</a>	Seismic Data Processing	3

#### Groundwater Hydrology and Environmental Protection

<a href="#">GEO ENG 4276</a>	Environmental Aspects Of Mining	3
<a href="#">GEO ENG 5233</a>	Risk Assessment In Environmental Studies	3
<a href="#">GEO ENG 5235</a>	Environmental Geological Engineering	3
<a href="#">GEO ENG 5237</a>	Geological Aspects Of Hazardous Waste Management	3
<a href="#">GEO ENG 5320</a>	Groundwater Modeling	3
<a href="#">GEO ENG 5381</a>	Intermediate Subsurface Hydrology And Contaminant Transport Mechs	3
<a href="#">CIV ENG 5640</a>	Environmental Law And Regulations	3
<a href="#">PET ENG 3330</a>	Well Logging	3

#### Quarry and Mine Engineering

<a href="#">GEO ENG 4276</a>	Environmental Aspects Of Mining	3
<a href="#">GEO ENG 5471</a>	Rock Engineering	3
<a href="#">GEO ENG 5575</a>	Aggregates And Quarrying	3
<a href="#">CIV ENG 3116</a>	Construction Materials, Properties And Testing	3
<a href="#">MIN ENG 3913</a>	Mineral Identification and Exploration	3
<a href="#">MIN ENG 5612</a>	Principles of Explosives Engineering	3
<a href="#">MIN ENG 5822</a>	Strata Control	3
<a href="#">MIN ENG 5823</a>	Rock Mechanics	3
<a href="#">MIN ENG 5912</a>	Mine Power and Drainage	3

### Renewable and Conventional Energy Resources

<a href="#">GEO ENG 5146</a>	Applications Of Geographic Information Systems	3
<a href="#">GEO ENG 5556</a>	Renewable Energy Systems	3
<a href="#">GEOLOGY 4421</a>	Radioactive Waste Management And Remediation	3
or <a href="#">NUC ENG 4367</a>	Radioactive Waste Management And Remediation	
<a href="#">GEOLOGY 5511</a>	Applied Petroleum Geology	3
<a href="#">MIN ENG 5322</a>	Coal Mining Methods	3
<a href="#">MIN ENG 5422</a>	Coal Preparation	3
<a href="#">MIN ENG 5823</a>	Rock Mechanics	3
<a href="#">PET ENG 2510</a>	Properties Of Hydrocarbon Fluids	3
<a href="#">PET ENG 3330</a>	Well Logging	3
<a href="#">PET ENG 3520</a>	Petroleum Reservoir Engineering	3
<a href="#">PET ENG 4520</a>	Well Test Analysis	3

### Accelerated BS/MS Option (Graduate Pathway)

Students nearing completion of a BS in geological engineering can share up to nine 5000- or 6000-level credit hours toward their BS degree and a MS degree in geological engineering simultaneously, if they satisfy the following criteria:

- Have completed 64 credit hours of course work, including:
  - All chemistry and mathematics requirements, and
  - 21 credit hours of geological engineering courses with a minimum GPA of 3.20 in the geological engineering courses.
- Complete an application listing the courses to be shared, with approval from the undergraduate advisor and a recommendation from the geological engineering faculty member who agrees to serve as their MS advisor. The shared courses may not be undergraduate research, special problems, or transfer courses. Applications are due within one semester of completing the last shared course.
- Follow all geological engineering non-thesis MS program requirements (see the Graduate Catalog).

All other MS degree requirements remain the same. The program may be combined with existing honors research, emphasis areas, and certificate options. An additional six credit hours of coursework for graduate credit (beyond the shared BS/MS credits) can be taken while in the undergraduate program by applying for dual undergraduate/graduate enrollment. Taking additional courses for graduate credit as a dual enrolled student will require formal application to the graduate program. Upon application, acceptance to the geological engineering MS degree program from this option is automatic as long as the student remains in good standing (GPA above 3.0 and B's or better in all graduate courses within the program). To remain in this option, the student must meet geological engineering graduate academic performance requirements and maintain continuous enrollment at Missouri S&T. If the student exits the program before completion of the MS degree, or fails to maintain continuous enrollment at Missouri S&T, the shared-credit courses may not apply toward graduate requirements in the event of future readmission.

It is the student's responsibility to check how dual-enrollment status and graduate coursework would affect scholarships and other financial aid. Graduate students are not eligible for Federal Pell Grants, though they are eligible for Federal Financial Aid, as well as fellowships and teaching/research assistantships. International students are responsible for checking with the International Affairs Office during completion of an accelerated BS/MS to ensure immigration status is properly maintained throughout the program.

This option reduces the cost and the time required to earn a MS. See the Graduate Pathway section of this catalog, and the Geological Engineering Masters section of the Graduate Catalog, for additional details.

**Justification for request**

Language to prior Freshman Engineering Program has been removed.

Additional options for Statistics courses have been added. These options are both appropriate for the degree program and give students additional scheduling flexibility.

**Supporting Documents****Course Reviewer Comments**

**tibbettsmg (04/07/22 11:10 am):** updated footnote format. MR

Key: 156

## Program Change Request

Date Submitted: 04/06/22 1:20 pm

Viewing: **INORGPS-MS : Industrial Organizational Psychology MS**

File: 234.28

Last approved: 09/15/20 9:41 am

Last edit: 04/14/22 10:32 am

Changes proposed by: burnsde

Catalog Pages Using this Program

[Psychology](#)

Start Term

Fall 2022 ~~2020~~

Program Code

INORGPS-MS

Department

Psychological Science

Title

Industrial Organizational Psychology MS

## Program Requirements and Description

### In Workflow

1. **RPSCYCHOL Chair**
2. **CCC Secretary**
3. **Social Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. **Faculty Senate Chair**
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/13/22 6:10 pm  
Susan Murray (murray): Approved for RPSYCHOL Chair
2. 04/14/22 10:32 am  
Marita Raper (tibbettsmg): Approved for CCC Secretary
3. 04/14/22 10:47 am  
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/20/22 2:42 pm  
Marita Raper (tibbettsmg): Approved for Pending CCC Agenda post
5. 05/03/22 9:35 am  
Marita Raper (tibbettsmg): Approved for CCC

Meeting Agenda  
6. 05/03/22 9:38 am  
Stephen Raper  
(sraper): Approved  
for Campus  
Curricula  
Committee Chair

## History

1. Apr 17, 2014 by  
Lahne Black (lahne)
2. Apr 17, 2014 by  
Lahne Black (lahne)
3. Apr 24, 2014 by  
Lahne Black (lahne)
4. Apr 24, 2014 by  
Lahne Black (lahne)
5. Apr 24, 2014 by  
Lahne Black (lahne)
6. May 7, 2014 by  
Lahne Black (lahne)
7. Jul 8, 2014 by  
pantaleoa
8. Jul 29, 2014 by  
pantaleoa
9. Jun 19, 2015 by  
nstone
10. Jun 23, 2015 by  
pantaleoa
11. Jul 24, 2015 by  
pantaleoa
12. Jul 24, 2015 by  
pantaleoa
13. Dec 1, 2016 by  
Nathan Weidner  
(weidnern)
14. Jul 11, 2017 by  
Crystal Wilson  
(wilsoncry)
15. Feb 27, 2018 by  
Nathan Weidner  
(weidnern)
16. Jul 1, 2020 by  
Devin Burns  
(burnsde)
17. Sep 15, 2020 by  
Crystal Wilson  
(wilsoncry)

## Master of Science in Industrial-Organizational Psychology

### Admission Requirements

Students interested in the M.S. in I-O psychology program should review the admissions requirements listed on our website (<https://psych.mst.edu/academic-programs/graduate/admission-requirements/>).

### Program Requirements

The M.S. in industrial-organizational psychology requires 40 credit hours which includes a thesis or non-thesis option. Students will complete 24 credit hours of core courses, 10 hours of methods courses, and either 6 hours of elective credits or 6 hours of thesis credits. Applied internship experiences are suggested, but not required as part of the program. The program will take at least 2 years to complete and classes are offered both on-campus and via distance.

Core Courses (24 hours)	
<a href="#">PSYCH 5020</a>	Introduction to Industrial-Organizational Psychology
<a href="#">PSYCH 5601</a>	Small Group Dynamics
<a href="#">PSYCH 5602</a>	Organizational Development
<a href="#">PSYCH 5700</a>	Job Analysis and Performance Management
<a href="#">PSYCH 6610</a>	Leadership, Motivation, and Culture
<a href="#">PSYCH 6702</a>	Personnel Selection
<a href="#">PSYCH 6602</a>	Employee Affect and Behavior
<a href="#">PSYCH 6700</a>	Training and Development
Methods Courses (10 hours)	
<a href="#">PSYCH 5201</a>	Psychometrics
<a href="#">PSYCH 5210</a>	Advanced Research Methods
<a href="#">PSYCH 5012</a>	Ethics and Professional Responsibilities
<a href="#">PSYCH 5202</a>	Applied Psychological Data Analysis
Electives from list below or Thesis (6 hours)	
<a href="#">PSYCH 5710</a>	Advanced Human Factors
<a href="#">PSYCH 5600</a>	Advanced Social Psychology
<a href="#">PSYCH 5001.001</a>	Course PSYCH 5001.001 Not Found
<a href="#">PSYCH 5001.002</a>	Course PSYCH 5001.002 Not Found
<a href="#">PSYCH 5740</a>	<a href="#">Occupational Health and Safety</a>
<a href="#">PSYCH 5001</a>	<a href="#">Special Topics</a>
Students completing a thesis would need to complete the following in place of electives:	
<a href="#">PSYCH 6099</a>	Research

#### Justification for request

Psych 5740 used to be Psych 5001 and now has a real number.

Supporting Documents

Course Reviewer Comments

**tibbettsmg (04/14/22 10:32 am):** updated term to FS22. MR

Key: 234

## Program Change Request

Date Submitted: 04/05/22 8:13 pm

Viewing: **MI ENG-BS : Mining Engineering BS**

File: 95.32

Last approved: 11/01/21 11:04 am

Last edit: 04/05/22 8:13 pm

Changes proposed by: kabp3

Catalog Pages Using this Program

[Mining Engineering](#)

Start Term

Fall 2022

Program Code

MI ENG-BS

Department

Mining & Nuclear Engineering

Title

Mining Engineering BS

### Program Requirements and Description

### In Workflow

1. **MINEXP ENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. **Faculty Senate Chair**
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/05/22 8:16 pm  
Kwame Awuah-Offei (kwamea):  
Approved for  
MINEXP ENG Chair
2. 04/07/22 10:56 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
3. 04/19/22 8:51 am  
Stephen Raper  
(sraper): Approved  
for Engineering  
DSCC Chair
4. 04/20/22 2:43 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:35 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC

Meeting Agenda  
6. 05/03/22 9:37 am  
Stephen Raper  
(sraper): Approved  
for Campus  
Curricula  
Committee Chair

## History

1. Apr 28, 2014 by Kwame Awuah-Offei (kwamea)
2. Jan 30, 2015 by Tina Alobaidan (cifarellit)
3. Jun 28, 2017 by Tina Alobaidan (cifarellit)
4. Mar 21, 2018 by Tina Alobaidan (cifarellit)
5. Jul 6, 2020 by ershenb
6. Nov 1, 2021 by Stephen Casey (casey-sc)

## Bachelor of Science ~~The~~ Mining Engineering

The Mining Engineering program at Missouri S&T is characterized by its focus on the scientific basics of ~~of~~ engineering and its innovative application to ~~application; indeed, the extraction underlying theme of this educational program is the application of (critical) minerals the scientific basics to engineering practice through attention to meet societal needs. problems and needs of the public. Indeed, the~~ underlying theme of this educational program is the application of basic science to engineering practice by solving engineering problems related to mineral extraction. These problems include the safe and sustainable extraction of minerals to power green energy. The necessary interrelations among the various topics, the engineering disciplines, and the other professions as they naturally come together in the solution of real world problems are emphasized as research, analysis, synthesis, and design are presented and discussed through classroom and laboratory instruction.

Incoming students who state the Mining Engineering preference are required to complete MIN ENG 2126 during the first or second semester on campus.

~~Bachelor of Science Mining Engineering Entering freshmen desiring to study Mining Engineering will be admitted to the Foundational Engineering and Computing Program. They will, however, be permitted, if they wish, to state a Mining Engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Foundational Engineering and Computing Program is on fundamental sciences and mathematics, enhanced advising and career counseling, with the goal of providing to the student the information necessary to make an informed decision regarding the choice of a major. In addition, students who state the~~

~~Mining Engineering preference are required to complete MIN ENG 2126 during the first or second semester on campus.~~ For the Bachelor of Science degree in Mining Engineering a minimum of 128 credit hours is required, although completion of an emphasis area may require up to 132 credits. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. A student must maintain at least two grade points per credit hour for all courses taken in the student's major department, and an average of at least two grade points per credit hour must be maintained in Mining Engineering.

Each student's program of study must contain a minimum of 21 credit hours of course work in general education and must be chosen according to the following rules:

1. All students are required to take one American History course, two economics courses, one humanities course, [ENGLISH 1120](#) and either [ENGLISH 1160](#), [ENGLISH 3560](#) or [TCH COM 1600](#). The history course is to be selected from [HISTORY 1200](#) , [HISTORY 1300](#) , [HISTORY 1310](#) , or [POL SCI 1200](#) . The economics courses must be either [ECON 1100](#) or [ECON 1200](#), and [ECON 3512](#) . The humanities course must meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.
2. The remaining three credit hours must meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog. Foreign language courses can be considered to be one of these courses. (Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000 or 5000 level.)
3. Special topics, special problems courses and honors seminars are allowed only by petition to and approval by the student's department chairman.

<b>Freshman Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MATH 1214</a> or <a href="#">1211</a>	4	<a href="#">MATH 1215</a>	4
<a href="#">CHEM 1310</a>	4	<a href="#">PHYSICS 1135</a>	4
<a href="#">CHEM 1319</a>	1	<a href="#">MECH ENG 1720</a>	3
<a href="#">CHEM 1100</a>	1	<a href="#">MIN ENG 1912</a>	2
<a href="#">MIN ENG 2126</a>	1	<a href="#">GEO ENG 1150</a>	3
<a href="#">FR ENG 1100</a>	1		
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3		
<a href="#">ENGLISH 1120</a>	3		
	18		16
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MIN ENG 2925</a>	2	<a href="#">MIN ENG 2412</a>	3
<a href="#">MIN ENG 3912</a>	3	<a href="#">MATH 3304</a>	3
<a href="#">MATH 2222</a>	4	<a href="#">MECH ENG 2527</a>	3
<a href="#">MIN ENG 3913</a>	3	<a href="#">MECH ENG 2350</a>	2
<a href="#">CIV ENG 2200</a>	3	<a href="#">PHYSICS 2135</a>	4
<a href="#">ECON 1100</a> or <a href="#">1200</a>	3		
	18		15
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>

<a href="#">STAT 3113</a> or <a href="#">3115</a>	3	<a href="#">MIN ENG 4512</a>	3
<a href="#">NUC ENG 3221</a> or <a href="#">CIV ENG 3330</a>	3	<a href="#">MIN ENG 5522</a>	3
<a href="#">MIN ENG 5932</a>	3	<a href="#">MIN ENG 5823</a>	3
<a href="#">CIV ENG 2210</a>	3	<a href="#">MIN ENG 5933</a>	3
<a href="#">ECON 3512</a>	3	<a href="#">ENGLISH 1600</a> , or <a href="#">1160</a> , or <a href="#">3560</a>	3
<a href="#">GEOLOGY 3310</a>	3		
	18		15
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MIN ENG 5612</a>	3	<a href="#">MIN ENG 5742</a>	3
<a href="#">MIN ENG 5912</a>	3	<a href="#">MIN ENG 4097</a>	4
<a href="#">MIN ENG 4096</a>	3	Technical Elective <sup>1,2,3,4,5,6</sup>	3
H/SS Elective	3	H/SS Elective	3
<a href="#">MIN ENG 5113</a>	3		
	15		13
Total Credits: 128			

1

**Explosives Engineering Emphasis:** [MIN ENG 5622](#) (Blasting Tech) and [MIN ENG 5823](#) (Rock Mechanics) or [MIN ENG 5922](#) (Tunneling/Construction) have to be taken as Technical Electives.

2

**Quarrying Emphasis:** Two of [CIV ENG 3116](#) (Construction Materials); [MIN ENG 5212](#) (Aggregate and Quarrying); and [MIN ENG 5412](#) (Aggregate Materials) have to be taken as Technical Electives.

3

**Coal Emphasis:** Two of [MIN ENG 5322](#) (Coal Mine Development and Production), [MIN ENG 4414](#) (Mine Plant Management) or an approved substitute course must be taken as Technical Electives.

4

**Mining and the Environment Emphasis:** [GEO ENG 5235](#) (Environmental Geological Engineering) and [GEO ENG 5233](#) (Risk Assessment in Environmental Studies), or approved substitute courses have to be taken as Technical Electives.

5

**Mining Health and Safety Emphasis:** [MIN ENG 3002](#) (Mine Rescue), [ENG MGT 4330](#) (Human Factors), or other approved substitute courses must be taken as Technical Electives.

6

**Sustainable Development Emphasis:** [POL SCI 3310](#) (Public Policy Analysis), [ECON 4440](#) (Environmental and Natural Resource Economics), or other approved substitute courses must be taken as Technical Electives.

~~The Mining Engineering program at Missouri S&T is characterized by its focus on the scientific basics of engineering and its innovative application; indeed, the underlying theme of this educational program is the application of the scientific basics to engineering practice through attention to problems and needs of the public. The necessary interrelations among the various topics, the engineering disciplines, and the other professions as they naturally come together in the~~

**~~solution of real world problems are emphasized as research, analysis, synthesis, and design are presented and discussed through classroom and laboratory instruction.~~ Graduating Mining Engineers Examination**

Mining engineering students must complete the Fundamentals of Engineering Examination prior to graduation as a senior assessment requirement. A passing grade is not required to earn a B.S. degree in mining engineering; however it is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process.

### Mining Health and Safety Emphasis

Junior and Senior Years		
<a href="#">MIN ENG 3002</a>	Mine Rescue (or approved substitute course in lieu of Technical Elective.)	3
<a href="#">ENG MGT 4330</a>	Human Factors (or approved substitute course in lieu of Technical Elective.)	3

### Sustainable Development Emphasis

Junior and Senior Years		
<a href="#">POL SCI 3300</a>	Principles Of Public Policy (or approved substitute course in lieu of Technical Elective.)	3
<a href="#">ECON 4440</a>	Environmental And Natural Resource Economics (or approved substitute course in lieu of Technical Elective.)	3

### Quarrying Engineering Emphasis

Senior Year		
<a href="#">CIV ENG 3116</a>	Construction Materials, Properties And Testing (in lieu of Technical Elective.)	3
<a href="#">MIN ENG 5212</a>	Aggregates and Quarrying	3

### Explosives Engineering Emphasis

Junior and Senior Years		
Choose one of the following courses in lieu of Technical Elective in Junior Year:		
A three-credit hour explosives engineering (EXP ENG) course		
<a href="#">EXP ENG 5922</a>	Tunneling & Underground Construction Techniques	3
<a href="#">GEO ENG 5471</a>	Rock Engineering	
In lieu of Technical Elective in Senior Year:		
<a href="#">EXP ENG 5622</a>	Blasting Design And Technology	

### Coal Emphasis

Junior and Senior Years		
<a href="#">MIN ENG 5322</a>	Coal Mining Methods	3
<a href="#">MIN ENG 4414</a>	Mine Plant Management (or approved substitute course in lieu of Technical Elective.)	2

### Mining and the Environment Emphasis

Junior and Senior Years		
<a href="#">ENV ENG 5640</a>	Environmental Law And Regulations	3
<a href="#">GEO ENG 5233</a>	Risk Assessment In Environmental Studies (or approved substitute course in lieu of Technical Elective.)	3

**Justification for request**

This change is necessary to comply with the new direct admission requirements. The change essentially removes the reference to FEP and re-arranges the text to have an overview of the mining engineering program.

**Supporting Documents****Course Reviewer Comments**

Key: 95

## Program Change Request

Date Submitted: 04/05/22 3:10 pm

Viewing: **PHILTCH-MI : Philosophy of Technology Minor**

File: 188.10

Last approved: 07/21/15 12:46 pm

Last edit: 04/12/22 11:42 am

Changes proposed by: msp7h

Catalog Pages Using this Program

[Philosophy](#)

Start Term

Fall 2022 8/1/2014

Program Code

PHILTCH-MI

Department

Arts, Languages, & Philosophy

Title

Philosophy of Technology Minor

## Program Requirements and Description

### In Workflow

1. RPHILOSO Chair
2. CCC Secretary
3. Arts & Humanities DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. Evie Sherlock

### Approval Path

1. 04/07/22 1:17 pm  
Audra Merfeld-Langston (audram):  
Approved for RPHILOSO Chair
2. 04/12/22 11:42 am  
Marita Raper (tibbetmsg):  
Approved for CCC Secretary
3. 04/12/22 11:45 am  
Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 04/20/22 2:44 pm  
Marita Raper (tibbetmsg):  
Approved for Pending CCC Agenda post
5. 05/03/22 9:35 am  
Marita Raper (tibbetmsg):  
Approved for CCC

Meeting Agenda  
 6. 05/03/22 9:37 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

## History

1. Apr 28, 2014 by  
Irina Ivliyeva  
(ivliyeva)
2. Aug 5, 2014 by  
pantaleoa
3. Jul 21, 2015 by  
pantaleoa

## Philosophy of Technology Minor

To qualify, all students must take 15 hours of course work in the following areas of philosophy, political science and history. Nine or more of these hours will need to be in philosophy.

Mandatory:		
<a href="#">PHILOS 1115</a>	Logic and Reasoning: An Introduction	3
At least two of the following, one of which must be a philosophy class:		
<a href="#">PHILOS 4345</a>	Philosophy Of Science	3
<a href="#">PHILOS 4320</a>	Minds And Machines	3
<a href="#">HISTORY 3550</a>	<b>Course HISTORY 3550 Not Found</b>	<b>3</b>
<a href="#">HISTORY 4550</a>	<a href="#">Architecture, Technology and Society; 1750 to Present</a>	<u>3</u>
Additional courses from:		
<a href="#">PHILOS 1105</a>	Self and World: Introduction To Philosophy	3
<a href="#">BIO SCI 1163</a>	Biotechnology in Film	3
<a href="#">PHILOS 3223</a>	Bioethics	3
<a href="#">HISTORY 2510</a>	History of Technology	3
<a href="#">HISTORY 3510</a>	Twentieth Century Technology And Society	3

### Justification for request

This is correcting the missing History 3350 course with History 4550 so that the curriculum for this minor is up-to-date and correct.

### Supporting Documents

### Course Reviewer Comments

**tibbettsmg (04/12/22 11:42 am):** updated term to FS22. MR

Key: 188

## Program Change Request

Date Submitted: 04/08/22 4:03 pm

Viewing: **PRE LAW-MI : Pre Law Minor**

File: 121.7

Last approved: 02/27/18 10:03 am

Last edit: 04/08/22 4:03 pm

Changes proposed by: dewittp

Catalog Pages Using this Program

[Prelaw](#)

Start Term

Fall ~~2022~~ 2018

Program Code

PRE LAW-MI

Department

History and Political Science

Title

Pre Law Minor

### Program Requirements and Description

### In Workflow

1. RHISTORY Chair
2. CCC Secretary
3. Arts & Humanities  
DSCC Chair
4. Pending CCC  
Agenda post
5. CCC Meeting  
Agenda
6. Campus Curricula  
Committee Chair
7. FS Meeting  
Agenda
8. Faculty Senate  
Chair
9. Registrar
10. Evie Sherlock

### Approval Path

1. 04/11/22 11:20 am  
Michael Bruening  
(bruening):  
Approved for  
RHISTORY Chair
2. 04/12/22 11:33 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
3. 04/12/22 11:36 am  
Petra Dewitt  
(dewittp): Approved  
for Arts &  
Humanities DSCC  
Chair
4. 04/20/22 2:45 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:35 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC

Meeting Agenda  
 6. 05/03/22 9:38 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

## History

1. Feb 27, 2018 by  
 Petra Dewitt  
 (dewittp)

## Prelaw Minor

To qualify, students must complete a minimum of 18 hours of coursework in the following disciplines.

<a href="#">PHILOS 1115</a>	Logic and Reasoning: An Introduction	3
Select two of the following:		6
<a href="#">HISTORY 1300</a>	American History To 1877	
<a href="#">HISTORY 1310</a>	American History Since 1877	
<a href="#">POL SCI 1200</a>	American Government	
<a href="#">PHILOS 1105</a>	Self and World: Introduction To Philosophy	
Select three of the following:		9
<a href="#">ENGLISH 2410</a>	Theory Of Written Communication	
<a href="#">ENGLISH 3101</a>	Advanced Composition	
<a href="#">HISTORY 2510</a>	History of Technology	
<a href="#">HISTORY 2791</a>	<a href="#">Historical Research Methods</a>	
<a href="#">HISTORY 3530</a>	History of Science	
<a href="#">HISTORY 4470</a>	American Environmental History	
<a href="#">HISTORY 2790</a>	<a href="#">Course HISTORY 2790 Not Found</a>	
<a href="#">HISTORY 4790</a>	<a href="#">Historiography</a>	
<a href="#">PHILOS 3235</a>	Business Ethics	
<a href="#">PHILOS 4340</a>	From Activism to Zoos: Issues in Social Ethics	
<a href="#">PHILOS 4345</a>	Philosophy Of Science	
<a href="#">PHILOS 4350</a>	Environmental Ethics	
<a href="#">PHILOS 4360</a>	Who Should Rule and Why? Debates in Political Philosophy	
<a href="#">POL SCI 3300</a>	Principles Of Public Policy	
<a href="#">POL SCI 3310</a>	Public Policy Analysis	

<a href="#">POL SCI 3760</a>	The American Presidency
<a href="#">POL SCI 3763</a>	Contemporary Political Thought
May substitute ONE of these three courses with one of the following with the approval of the advisor:	
<a href="#">BUS 1210</a>	Financial Accounting
<a href="#">BUS 2910</a>	Business Law
<a href="#">COMP SCI 4700</a>	Intellectual Property For Computer Scientists
<a href="#">IS&amp;T 5168/PHILOS 4368</a>	Law and Ethics in E-Commerce
<a href="#">ECON 3830</a>	History Of Economic Thought
<a href="#">ECON 4430</a>	Cost-Benefit Analysis
<a href="#">ECON 4820</a>	Labor Economics
<a href="#">ENG MGT 5514</a>	Patent Law
<a href="#">ENG MGT 5512</a>	Legal Environment
<a href="#">ETYM 4306</a>	Introduction To Etymology

**Justification for request**

History 2790 is no longer available, it has been replaced by History 2791 and History 4790. We believe either course is useful for anyone going to law school.

**Supporting Documents****Course Reviewer Comments**

Key: 121

## Program Change Request

Date Submitted: 04/05/22 4:59 pm

Viewing: **PRE-MED-MI : Pre-Medicine Minor**

File: 123.9

Last approved: 02/03/21 10:52 am

Last edit: 04/12/22 11:34 am

Changes proposed by: shannonk

Catalog Pages Using this Program

[Prehealth Professions](#)

Start Term

Fall ~~2021~~ 2022

Program Code

PRE-MED-MI

Department

College of Arts & Sciences

Title

Pre-Medicine Minor

### Program Requirements and Description

### In Workflow

1. CCC Secretary
2. Sciences DSCC Chair
3. Pending CCC Agenda post
4. CCC Meeting Agenda
5. Campus Curricula Committee Chair
6. FS Meeting Agenda
7. Faculty Senate Chair
8. Registrar
9. Evie Sherlock

### Approval Path

1. 04/12/22 11:35 am  
Marita Raper (tibbettsmg): Approved for CCC Secretary
2. 04/18/22 4:06 pm  
Katie Shannon (shannonk): Approved for Sciences DSCC Chair
3. 04/20/22 2:45 pm  
Marita Raper (tibbettsmg): Approved for Pending CCC Agenda post
4. 05/03/22 9:35 am  
Marita Raper (tibbettsmg): Approved for CCC Meeting Agenda
5. 05/03/22 9:38 am  
Stephen Raper (sraper): Approved for Campus Curricula

Committee Chair

## History

1. Mar 31, 2014 by  
pantaleoa
2. Mar 31, 2014 by  
pantaleoa
3. Dec 11, 2017 by  
David Westenberg  
(djwesten)
4. Apr 28, 2020 by  
Katie Shannon  
(shannonk)
5. Feb 3, 2021 by  
Katie Shannon  
(shannonk)

## Premedicine Minor

It is recommended that students seeking the Pre-Medicine minor declare their intentions as soon as possible. Students completing the Pre-Medicine minor curriculum in addition to their BA/BS curriculum will have completed all requirements for admission to most Medical, Dental, Veterinary or other health profession programs. However, it is important to consult with a member of the Pre-Health Professions Advisory Committee to ensure you are completing the necessary coursework for your desired profession. The Pre-Medicine minor is not intended for a student majoring in Chemistry, Biological Sciences or Chemical and Biochemical Engineering which already offer a Pre-Medicine approved curriculum. Required courses for the Pre-Medicine minor are:

<a href="#">BIO SCI 1213</a> & <a href="#">BIO SCI 1219</a>	Principles of Biology and General Biology Lab	4
or <a href="#">BIO SCI 1113</a> & <a href="#">BIO SCI 1219</a>	General Biology and General Biology Lab	
<a href="#">BIO SCI 2213</a> & <a href="#">BIO SCI 2219</a>	Cell Biology and Cell Biology Laboratory	4
<a href="#">CHEM 1310</a> & <a href="#">CHEM 1319</a> & <a href="#">CHEM 1320</a> & <a href="#">CHEM 1100</a>	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	9
<a href="#">CHEM 2210</a> & <a href="#">CHEM 2219</a> & <a href="#">CHEM 2220</a> & <a href="#">CHEM 2229</a>	Organic Chemistry I and Organic Chemistry I Lab and Organic Chemistry II and Organic Chemistry II Lab	8
<a href="#">PHYSICS 1145</a>	College Physics I	4
or <a href="#">PHYSICS 1135</a>	Engineering Physics I	
<a href="#">PHYSICS 2145</a>	College Physics II	4
or <a href="#">PHYSICS 2135</a>	Engineering Physics II	

<del>MATH 1208</del>	<del>Calculus With Analytic Geometry I</del>	
<del>or MATH 1212</del>	<del>Survey of Calculus</del>	
<del>or MATH 1214</del>	<del>Calculus I</del>	
<u>MATH 1211</u>	<u>Calculus I-B</u>	<u>4</u>
<u>or MATH 1212</u>	<u>Survey of Calculus</u>	
<u>or MATH 1214</u>	<u>Calculus I</u>	
One of the following courses (taking all four courses is strongly encouraged):		
<u>BIO SCI 2223</u>	General Genetics	
<u>BIO SCI 3333</u>	Human Anatomy and Physiology I	
<u>BIO SCI 3343</u>	Human Anatomy and Physiology II	
<u>CHEM 4610</u>	General Biochemistry	
<u>PREMED 3010</u>	Communication Workshop for the Pre-Health Student (Suggested but not required)	1

## Justification for request

MATH 1208 removed and MATH 1211 added

Supporting Documents

Course Reviewer Comments

**tibbetmsg (04/12/22 11:34 am):** updated term to FS22. MR

Key: 123

## Program Change Request

Date Submitted: 04/05/22 4:56 pm

# Viewing: **PROPOSED : Biological Sciences BS with Emphasis area in Medical Laboratory Scientist**

File: 377.7

Last approved: 04/15/21 10:13 am

Last edit: 04/05/22 4:56 pm

Changes proposed by: shannonk

Catalog Pages Using this Program

[Biological Sciences](#)

Start Term

Fall ~~2021~~ 2022

Program Code

PROPOSED

Department

Biological Sciences

Title

Biological Sciences BS with Emphasis area in Medical Laboratory Scientist

## Program Requirements and Description

### In Workflow

1. **RBIOLSCI Chair**
2. **CCC Secretary**
3. **Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. **Faculty Senate Chair**
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/06/22 8:03 am  
David Duvernell (duvernell):  
Approved for RBIOLSCI Chair
2. 04/12/22 11:51 am  
Marita Raper (tibbettsmg):  
Approved for CCC Secretary
3. 04/18/22 4:06 pm  
Katie Shannon (shannonk):  
Approved for Sciences DSCC Chair
4. 04/20/22 3:49 pm  
Marita Raper (tibbettsmg):  
Approved for Pending CCC Agenda post
5. 05/03/22 9:35 am  
Marita Raper (tibbettsmg):  
Approved for CCC

Meeting Agenda  
 6. 05/03/22 9:38 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

## History

1. Apr 13, 2021 by  
[Katie Shannon](#)  
 (shannonk)
2. Apr 14, 2021 by  
[Crystal Wilson](#)  
 (wilsoncry)
3. Apr 15, 2021 by  
[Crystal Wilson](#)  
 (wilsoncry)

## Bachelor of Science Biological Sciences Medical Laboratory Scientist Emphasis Area Degree Requirements

The Medical Laboratory Scientist 3+1 emphasis area is designed for students who wish to earn a B.S. degree in Biological Sciences, and become board certified by the American Society of Clinical Pathologists as a Medical Laboratory Scientist. Students who pursue this emphasis area complete three years of course work at Missouri S&T. The fourth year of clinical/professional study takes place at an affiliated accredited school of medical technology. Students who wish to complete this emphasis area will apply to University affiliated clinical programs in their third year, and must be accepted into a clinical program in order to complete this emphasis area. Students who are interested in the MLS 3+1 emphasis area should seek advisement early in their degree program from the Biological Sciences MLS 3+1 emphasis area advisor in order to insure adherence to special program requirements.

The Biological Science B.S. degree in the MLS 3+1 emphasis area must include a minimum of 38 semester hours of biological sciences course work plus an additional minimum of 32 hours of clinical program coursework.

Required biological sciences courses:		
<a href="#">BIO SCI 1201</a>	Biological Sciences Freshman Seminar	1
<a href="#">BIO SCI 1113</a>	General Biology	3
or <a href="#">BIO SCI 1213</a>	Principles of Biology	
<a href="#">BIO SCI 1219</a>	General Biology Lab	1
<a href="#">BIO SCI 1223</a> & <a href="#">BIO SCI 1229</a>	Biodiversity and Biodiversity Lab	4
<a href="#">BIO SCI 2213</a> & <a href="#">BIO SCI 2219</a>	Cell Biology and Cell Biology Laboratory	4

<a href="#">BIO SCI 2223</a>	General Genetics	3
<a href="#">BIO SCI 3233</a>	Evolution	3
<a href="#">BIO SCI 3313</a> & <a href="#">BIO SCI 3319</a>	Microbiology and Microbiology Lab	5
<a href="#">BIO SCI 4393</a>	Immunology	3
<a href="#">BIO SCI 4010</a>	Seminar	1
Selection of ten hours of additional advanced biological sciences courses should be informed by the recommendations of specific clinical affiliate programs. Suggested electives:		
<a href="#">BIO SCI 5313</a>	Pathogenic Microbiology	3
<a href="#">BIO SCI 4493</a>	General Virology	3
<a href="#">BIO SCI 3333</a>	Human Anatomy and Physiology I	3
<a href="#">BIO SCI 3343</a>	Human Anatomy and Physiology II	3
<a href="#">BIO SCI 3359</a>	Physiology Lab	1
Clinical program coursework typically includes a total of 32 credit hours, but may include more, depending on clinical affiliate program. Courses are enrolled at Missouri S&T from the following options in consultation with the MLS 3+1 emphasis area advisor:		
<a href="#">BIO SCI 4900</a>	Clinical Chemistry	5-10
<a href="#">BIO SCI 4901</a>	Clinical Microscopy	1-3
<a href="#">BIO SCI 4902</a>	Hematology and Coagulation	5-8
<a href="#">BIO SCI 4903</a>	Serology Immunology	2-4
<a href="#">BIO SCI 4904</a>	Clinical Microbiology	5-9
<a href="#">BIO SCI 4905</a>	Blood Bank Immunohematology	2-4
<a href="#">BIO SCI 4906</a>	Topics in Medical Technology	1-8
20 semester hours of chemistry to include:		
<a href="#">CHEM 1100</a>	Introduction To Laboratory Safety & Hazardous Materials	1
<a href="#">CHEM 1301</a> & <a href="#">CHEM 1319</a>	Introductory Chemistry and General Chemistry Laboratory	4
<a href="#">CHEM 1320</a>	General Chemistry II	3
<a href="#">CHEM 2210</a> & <a href="#">CHEM 2219</a>	Organic Chemistry I and Organic Chemistry I Lab	4
<a href="#">CHEM 2220</a> & <a href="#">CHEM 2229</a>	Organic Chemistry II and Organic Chemistry II Lab	4
<a href="#">CHEM 4610</a>	General Biochemistry	3
2 semesters of College (Engineering) Physics and labs		
<a href="#">PHYSICS 1145</a>	College Physics I	4
or <a href="#">PHYSICS 1135</a>	Engineering Physics I	
<a href="#">PHYSICS 2145</a>	College Physics II	4
or <a href="#">PHYSICS 2135</a>	Engineering Physics II	
Math and Statistics		

<a href="#">MATH 1120</a>	College Algebra	5
<a href="#">STAT 3425</a>	Introduction to Biostatistics	4
12 semester hours of humanities, excluding foreign language, and to include:		
<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
9 hours of social sciences, to include:		
<a href="#">HISTORY 1100</a>	Early Western Civilization	3
or <a href="#">HISTORY 1300</a>	American History To 1877	
or <a href="#">HISTORY 1310</a>	American History Since 1877	
or <a href="#">POL SCI 1200</a>	American Government	

Justification for request

MATH 1140 removed, no longer offered

Supporting Documents

Course Reviewer Comments

Key: 377

## Program Change Request

### New Program Proposal

Date Submitted: 04/06/22 1:48 pm

Viewing: **PROPOSED : Human Factors  
Psychology CT**

File: 390

Last edit: 04/06/22 1:48 pm

Changes proposed by: burnsde

Start Term

Fall 2022

Program Code

PROPOSED

Department

Psychological Science

Title

Human Factors Psychology CT

### Program Requirements and Description

### In Workflow

1. **RPSCYCHOL Chair**
2. **CCC Secretary**
3. **Social Sciences  
DSCC Chair**
4. **Pending CCC  
Agenda post**
5. **CCC Meeting  
Agenda**
6. **Campus Curricula  
Committee Chair**
7. **FS Meeting  
Agenda**
8. **Faculty Senate  
Chair**
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/13/22 6:11 pm  
Susan Murray  
(murray): Approved  
for RPSYCHOL  
Chair
2. 04/14/22 10:39 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
3. 04/14/22 10:47 am  
Cecil Eng Huang  
Chua (cchua):  
Approved for Social  
Sciences DSCC  
Chair
4. 04/20/22 3:51 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:35 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC

Meeting Agenda  
 6. 05/03/22 9:39 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

# Human Factors Psychology Certificate

This certificate is designed to give students expertise in how people interact with engineered systems and devices. Students will increase their understanding of how to engage in human-centered design and better support interactions between humans and technology. This certificate will help advance multiple career paths including human-focused paths to better understand technology and technology-focused paths to better understand human perspective.

Students will have greater expertise understanding and critically analyzing the intersection of technology design and implementation with human capacity and approaches, including the use of technology for communication, occupational health and safety standards, understanding and use of information systems, and using technology to connect to customers/the market.

Course requirements include the following:

<a href="#">PSYCH 5710</a>	Advanced Human Factors	3
And 3 of the following:		
<a href="#">PSYCH 4720</a>	Psychology of Social Technology	
<a href="#">PSYCH 5740</a>	Occupational Health and Safety	
<a href="#">TCH COM 5530</a>	Usability Studies	
<a href="#">IS&amp;T 5885</a>	Human-Computer Interaction and User Experience	
<a href="#">BUS 5150</a>	Customer Focus and Satisfaction	

This program is open to all persons holding a bachelor's, master's, or doctorate degree in psychology, business, or a related field, with a preferred minimum of one year of professional employment experience. Minimum undergraduate GPA is 3.0.

## Justification for request

A newly approved program.

## Supporting Documents

[Graduate CT Human Factors Psychology.pdf](#)

[MS&T PC Feb 2022.pdf](#)

## Course Reviewer Comments

Key: 390

## Program Change Request

A deleted record cannot be edited

### Program Deactivation Proposal

Date Submitted: 04/21/22 11:23 am

Viewing: **PSYMTRP-CT : Statistical Methods  
Psych CT**

File: 305.8

Last approved: 07/29/21 9:07 am

Last edit: 04/22/22 1:41 pm

Changes proposed by: burnsde

Catalog Pages Using this Program

[Mathematics and Statistics](#)

[Psychology](#)

Start Term

Fall ~~2022~~ 2024

Program Code

PSYMTRP-CT

Department

Psychological Science

Title

Statistical Methods Psych CT

### Program Requirements and Description

### In Workflow

1. RPSYCHOL Chair
2. CCC Secretary
3. Social Sciences  
DSCC Chair
4. Pending CCC  
Agenda post
5. CCC Meeting  
Agenda
6. Campus Curricula  
Committee Chair
7. FS Meeting  
Agenda
8. Faculty Senate  
Chair
9. Registrar
10. Evie Sherlock

### Approval Path

1. 04/13/22 6:11 pm  
Susan Murray  
(murray): Approved  
for RPSYCHOL  
Chair
2. 04/20/22 11:40 am  
Marita Raper  
(tibbettsmg):  
Rollback to Initiator
3. 04/22/22 1:27 pm  
Susan Murray  
(murray): Approved  
for RPSYCHOL  
Chair
4. 04/22/22 1:41 pm  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
5. 04/22/22 1:42 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for Social  
Sciences DSCC

Chair

- 6. 04/22/22 2:19 pm  
Marita Raper  
(tibbetmsg):  
Approved for  
Pending CCC  
Agenda post
- 7. 05/03/22 9:36 am  
Marita Raper  
(tibbetmsg):  
Approved for CCC  
Meeting Agenda
- 8. 05/03/22 9:39 am  
Stephen Raper  
(srafer): Approved  
for Campus  
Curricula  
Committee Chair

## History

- 1. Jun 13, 2019 by  
ershenb
- 2. Jul 1, 2020 by  
Devin Burns  
(burnsde)
- 3. Sep 15, 2020 by  
Crystal Wilson  
(wilsoncry)
- 4. May 5, 2021 by  
Devin Burns  
(burnsde)
- 5. Jul 29, 2021 by  
Crystal Wilson  
(wilsoncry)

## Statistical Methods in Psychology

This certificate program is designed to provide formalized education in the area of statistics as it is applied to the analysis of psychological data. Students will complete a four course sequence of classes designed to develop basic graduate level skills in psychological data analysis. These courses will develop an understanding of basic graduate level statistical concepts including probability, t-tests, ANOVAs, regression, as well as non-parametric tests. Students will engage in projects which include measure development and refinement procedures.

The following two psychology courses will be required:

<a href="#">PSYCH 5201</a>	Psychometrics
<a href="#">PSYCH 5202</a>	Applied Psychological Data Analysis

And an additional two statistics courses chosen from these four:

<a href="#">STAT 5346</a>	Regression Analysis
<a href="#">STAT 5353</a>	Statistical Data Analysis
<a href="#">STAT 5643</a>	Probability And Statistics
<a href="#">STAT 6344</a>	Design And Analysis Of Experiments

Students admitted to the certificate program will have a non-matriculated status as a graduate student. If they complete each of the four courses with a grade of B or better, they may be admitted to the Missouri S&T master's degree program in industrial-organizational psychology or mathematics and statistics if they apply and meet the program requirements. Students who do not have all of the prerequisite courses necessary to take a course in the certificate program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

#### Justification for request

This program has been discontinued.

#### Supporting Documents

#### Course Reviewer Comments

**tibbettsmg (04/20/22 11:40 am):** Rollback: please attach approvals and resubmit. MR

**tibbettsmg (04/22/22 1:41 pm):** Approved by MDHE on 4/1/22.

Key: 305

## Program Change Request

Date Submitted: 04/05/22 3:49 pm

Viewing: **WATERSC-MS : Water Science and Engineering MS**

File: 345.8

Last approved: 06/10/21 4:09 pm

Last edit: 04/07/22 11:24 am

Changes proposed by: grotekr

Catalog Pages Using this Program

[Water Science and Engineering](#)

Start Term

Fall ~~2021~~ 2022

Program Code

WATERSC-MS

Department

Geosciences and Geological and Petroleum Engineering

Title

Water Science and Engineering MS

### Program Requirements and Description

### In Workflow

1. RGEOENG Chair
2. CCC Secretary
3. Engineering DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. Evie Sherlock

### Approval Path

1. 04/05/22 3:59 pm  
Jeff Cawfield (jdc):  
Approved for  
RGEOENG Chair
2. 04/07/22 11:24 am  
Marita Raper  
(tibbetmsg):  
Approved for CCC  
Secretary
3. 04/19/22 8:51 am  
Stephen Raper  
(sraper): Approved  
for Engineering  
DSCC Chair
4. 04/20/22 3:52 pm  
Marita Raper  
(tibbetmsg):  
Approved for  
Pending CCC  
Agenda post
5. 05/03/22 9:36 am  
Marita Raper  
(tibbetmsg):  
Approved for CCC  
Meeting Agenda
6. 05/03/22 9:38 am

Stephen Raper  
(sraper): Approved  
for Campus  
Curricula  
Committee Chair

## History

1. Jun 10, 2021 by Sharon Lauck (laucks)

## Master of Science

### Water Science and Engineering

The Water Science and Engineering (WSE) Master of Science (MS) degree requires a total of ~~30~~ 34 graduate credit hours beyond the B.S. degree for both thesis and non-thesis MS options. We encourage applications from students with undergraduate degrees from one of the seven participating programs (Biology, Chemistry, Chemical Engineering, Civil Engineering, Environmental Engineering, Geology and Geophysics, and Geological Engineering) or closely related degree programs. Graduate certificates in *Subsurface Water Resources* and/or *Surface Water Resources* can serve as an entry point into the WSE program.

The thesis option is comprised of the following:

- **Program Courses:** Students will select six courses (18hrs) from the Program Course List. Students must take at least one course from three different course categories and also take at least one course from three separate departments. Course categories include *Engineering Hydrology*, *Water Infrastructure and Remediation*, *Water Resources and the Environment*, and *Water Policy*.
- **Additional Courses:** Students will select two courses (6 hrs) from a combination of existing and newly developed graduate courses that are relevant to their degree plans. These courses must be approved by their advisor in consultation with their thesis committee and will be chosen based on their specific career goals and interests.
- ~~interests.~~  
• ~~Graduate Seminar: Students will be required to take one hour of graduate seminar from any of the affiliated disciplines.~~ **Thesis Research:** Students will complete six hours of research credit.

The non-thesis option is identical to the thesis option except that the research hours are replaced with six hours of additional coursework. The non-thesis WSE MS-degree is offered both on campus and online.

Engineering Hydrology		
<a href="#">CIV ENG 6331</a>	Advanced Hydraulics And Hydraulic Engineering	3
<a href="#">CIV ENG 5338</a>	Hydrologic Engineering	3
<a href="#">CIV ENG 5330</a>	Unsteady Flow Hydraulics	3
<a href="#">CIV ENG 5331</a>	Hydraulics Of Open Channels	3
<a href="#">CIV ENG 5333</a>	Intermediate Hydraulic Engineering	3

<a href="#">CIV ENG 5337</a>	River Mechanics And Sediment Transport	3
<a href="#">CIV ENG 6338</a>	Advanced Hydrology	3
<a href="#">GEO ENG 5320</a>	Groundwater Modeling	3
<a href="#">GEO ENG 5331</a>	Subsurface Hydrology	3
<a href="#">GEO ENG 5332</a>	Fundamentals of Groundwater Hydrology	3
<a href="#">GEO ENG 6331</a>	<a href="#">Advanced Subsurface Hydrology</a>	<a href="#">3</a>

Water Infrastructure and Remediation		
<a href="#">CIV ENG 5335</a>	Water Infrastructure Engineering	3
<a href="#">CIV ENG 6340</a>	Urban Hydrology	3
<a href="#">CIV ENG 6335</a>	Hydraulic Structures	3
<a href="#">BIO SCI 6463</a>	Bioremediation	3
<a href="#">CHEM ENG 4210</a>	Biochemical Reactors	3
<a href="#">CHEM ENG 5110</a>	Intermediate Chemical Reactor Design	3
<a href="#">CIV ENG 5332</a>	Transport Processes in Environmental Flows	3
<a href="#">CIV ENG 5360</a>	Water Resources And Wastewater Engineering	3
<a href="#">ENV ENG 5630</a>	Remediation of Contaminated Groundwater And Soil	3
<a href="#">ENV ENG 5635</a>	Phytoremediation and Natural Treatment Systems: Science and Design	3
<a href="#">ENV ENG 5619</a>	Environmental Engineering Design	3
<a href="#">ENV ENG 6612</a>	Biological Operations In Environmental Engineering Systems	3
<a href="#">ENV ENG 6611</a>	Physicochemical Operations In Environmental Engineering Systems	3
<a href="#">GEO ENG 6237</a>	Advanced Geological & Geotechnical Design For Hazardous Waste Mgt	3
<a href="#">GEO ENG 5239</a>	Groundwater Remediation	3
<a href="#">GEO ENG 5381</a>	Intermediate Subsurface Hydrology And Contaminant Transport Mechs	3

Water Resources and the Environment		
<a href="#">BIO SCI 4313</a>	Introduction to Environmental Microbiology	3
<a href="#">BIO SCI 6313</a>	Environmental Microbiology	3
<a href="#">BIO SCI 4383</a>	Toxicology	3
<a href="#">BIO SCI 4363</a>	Freshwater Ecology	3
<a href="#">BIO SCI 6363</a>	Advanced Freshwater Ecology	3
<a href="#">BIO SCI 6383</a>	Advanced Toxicology	3
<a href="#">CHEM ENG 5340</a>	Principles of Environmental Monitoring	3
<a href="#">CHEM 4710</a>	Principles Of Environmental Monitoring	3
<a href="#">CHEM 5710</a>	Environmental Monitoring	3
<a href="#">ENV ENG 5605</a>	Environmental Systems Modeling	3
<a href="#">ENV ENG 5642</a>	Sustainability, Population, Energy, Water, and Materials	3
<a href="#">GEOLOGY 4431</a>	Methods Of Karst Hydrogeology	3

<a href="#">GEOLOGY 4411</a>	Hydrogeology	3
<a href="#">GEOLOGY 4451</a>	Aqueous Geochemistry	3
<a href="#">GEO ENG 5153</a>	Regional Geological Engineering Problems In North America	3
<a href="#">GEO ENG 5233</a>	<a href="#">Risk Assessment In Environmental Studies</a>	<a href="#">3</a>
<a href="#">GEO ENG 5782</a>	<a href="#">Environmental and Engineering Geophysics</a>	<a href="#">3</a>
<a href="#">GEO ENG 6736</a>	<a href="#">Advanced Geophysical Methods</a>	<a href="#">3</a>

Water Policy		
<a href="#">CIV ENG 5640</a>	Environmental Law And Regulations	3
<a href="#">CIV ENG 5650</a>	Public Health Engineering	3
<a href="#">POL SCI 4500</a>	Geopolitics and International Security	3
<a href="#">POL SCI 4320</a>	Policy for Science, Technology, and Innovation	3
<a href="#">ECON 4440</a>	Environmental And Natural Resource Economics	3

A written thesis and formal thesis defense are required for thesis-based MS-degree students. Entrance requirements are equivalent to the baseline university graduate student admission standards. The GRE exam is not required for internal degree applicants. \_

#### Justification for request

The Water Science and Engineering Faculty voted to add these courses, as they are appropriate inclusions in the program. We also decided to remove the seminar requirement and reduce the number of hours by one, as this requirement could not be filled online, and the degree is supposed to be available in both online and on-campus modes.

#### Supporting Documents

[!Chancellor-Provost Support Letter WSE.pdf](#)

[!Open Proposal\\_S&T MS Water Science and Engineering.pdf](#)

[!MDHE MST NP March 2021.pdf](#)

#### Course Reviewer Comments

**tibbettsmg (04/07/22 11:24 am):** updated effective term to Fall 22. MR

Key: 345

## Program Change Request

Date Submitted: 04/06/22 1:23 pm

Viewing: **WORKPSY-CT : Applied Workplace  
Psych CT**

File: 304.13

Last approved: 09/15/20 2:31 pm

Last edit: 04/14/22 10:34 am

Changes proposed by: burnsde

Catalog Pages Using this Program

[Psychology](#)

Start Term

Fall ~~2020~~ 2022

Program Code

WORKPSY-CT

Department

Psychological Science

Title

Applied Workplace Psych CT

## Program Requirements and Description

### In Workflow

1. **RPSCYCHOL Chair**
2. **CCC Secretary**
3. **Social Sciences  
DSCC Chair**
4. **Pending CCC  
Agenda post**
5. **CCC Meeting  
Agenda**
6. **Campus Curricula  
Committee Chair**
7. **FS Meeting  
Agenda**
8. **Faculty Senate  
Chair**
9. **Registrar**
10. **Evie Sherlock**

### Approval Path

1. 04/13/22 6:11 pm  
Susan Murray  
(murray): Approved  
for RPSYCHOL  
Chair
2. 04/14/22 10:34 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Secretary
3. 04/20/22 3:56 pm  
Marita Raper  
(tibbettsmg):  
Rollback to  
RPSYCHOL Chair  
for Pending CCC  
Agenda post
4. 04/22/22 1:27 pm  
Susan Murray  
(murray): Approved  
for RPSYCHOL  
Chair
5. 04/22/22 1:45 pm  
Marita Raper  
(tibbettsmg):  
Approved for CCC

- Secretary
6. 04/22/22 1:46 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for Social  
Sciences DSCC  
Chair
7. 04/22/22 2:20 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
8. 05/03/22 9:36 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
9. 05/03/22 9:39 am  
Stephen Raper  
(sraper): Approved  
for Campus  
Curricula  
Committee Chair

## History

1. Oct 25, 2019 by  
ershenb
2. Jul 1, 2020 by  
Devin Burns  
(burnsde)
3. Sep 15, 2020 by  
Crystal Wilson  
(wilsoncry)

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## Applied Workplace Psychology

The applied workplace psychology graduate certificate is designed to serve as a recruitment tool for the industrial-organizational psychology MS program. This program will offer students a set of foundational courses in industrial and organizational psychology. Students who pass all four courses with a cumulative GPA grade of 3.0 B or better in each course can gain entry to the I-O psychology MS program with the other application requirements being waived. The included courses cover an introductory I-O seminar course, an advanced research methods course, a course on job analysis and performance appraisal and a small group dynamics course which will examine groups and teams in organizations.

All four courses included in the applied workplace psychology certificate curriculum will be offered once per year. All of these courses are available both on-campus as well as via distance.

Fall Courses:

<a href="#">PSYCH 5020</a>	Introduction to Industrial-Organizational Psychology	3
<a href="#">PSYCH 5210</a>	Advanced Research Methods	3

## Spring Courses:

<a href="#">PSYCH 5601</a>	Small Group Dynamics	3
<a href="#">PSYCH 5700</a>	Job Analysis and Performance Management	3

Admissions requirements for the applied workplace psychology certificate are available at <https://psych.mst.edu/academic-programs/graduate/admission-requirements/>

Students admitted to the applied workplace psychology certificate program will have non-degree graduate status, however, they will earn graduate credit for the course they complete. If the student completes the four-course sequence with a cumulative GPA grade of 3.0 B or better, ~~better in each of the courses taken~~, they, upon application, will be admitted to the M.S. degree program in industrial organizational psychology. The certificate credits taken by the students admitted to the M.S. degree program will count towards their master's degrees. Students who do not have all of the prerequisite courses necessary to begin the courses in the applied workplace psychology certificate program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

Justification for request

Supporting Documents

Course Reviewer Comments

**tibbettsmg (04/14/22 10:34 am):** updated term to FS22. MR

**tibbettsmg (04/20/22 3:56 pm):** Rollback: DSCC was left out of the workflow. Need to rollback to get DSCC approval before adding to CCC agenda. Please approve again.

Key: 304

# Course Change Request

## New Experimental Course Proposal

Date Submitted: 04/07/22 12:13 pm

Viewing: **ART 2001.001 : Marvel Cinematic University – Media, Culture, and Philosophy via the Superhero**

File: 4871

Last edit: 05/03/22 9:33 am

Changes proposed by: msp7h

Requested	Spring 2023
Effective Change Date	
Department	Arts, Languages, & Philosophy
Discipline	Art (ART)
Course Number	2001
Topic ID	001
Experimental Title	

### In Workflow

1. RPHILOSOPHY Chair
2. CCC Secretary
3. Arts & Humanities DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. CAT entry
8. Registrar

### Approval Path

1. 04/07/22 1:31 pm  
Audra Merfeld-Langston (audram):  
Approved for RPHILOSOPHY Chair
2. 04/13/22 12:34 pm  
Marita Raper (tibbettsmg):  
Approved for CCC Secretary
3. 04/13/22 2:00 pm

- Petra Dewitt  
(dewittp):  
Approved for Arts  
& Humanities  
DSCC Chair
- 4. 04/20/22 2:24 pm  
Marita Raper  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
- 5. 05/03/22 9:33 am  
Marita Raper  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
- 6. 05/03/22 9:38 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

## Marvel Cinematic University – Media, Culture, and Philosophy via the Superhero

Experimental            Marvel Cinema University  
Abbreviated  
Course Title  
Instructors            Taylor Gruenloh

### Experimental Catalog Description

The MCU has cemented itself as one of the top brands in modern culture. Why are superhero films more popular than ever? How have these comic book stories from

the 1930s come to dominate the global box office and video streaming services? This course will analyze media, form, and style of the most continuous story line in cinema history.

Prerequisites

None

Field Trip

Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Justification for  
new course:

Students are asking for more film course offerings and the study topic is extremely popular.

Semester(s)

previously taught

Co-Listed

Courses:

Course Reviewer

Comments

Key: 4871

[Preview Bridge](#)

# Course Change Request

## New Experimental Course Proposal

Date Submitted: 02/09/22 10:21 am

Viewing: **CHEM ENG 5001.015 : Colloid**

## Chemistry and Interfacial Engineering

File: 4794

Last edit: 04/13/22 12:29 pm

Changes proposed by: luksc

Requested                      Fall 2022

Effective Change

Date

Department                    Chemical and Biochemical Engineering

Discipline                      Chemical Engineering (CHEM ENG)

Course Number                5001

Topic ID                        015

Experimental

Title

### In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **CAT entry**
8. Registrar

### Approval Path

1. 02/26/21 1:52 pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
2. 03/04/21 9:31 am  
kristyg: Rollback  
to Initiator
3. 07/19/21 3:42 pm  
Hu Yang (huyang):  
Approved for  
RCHEMENG Chair
4. 07/20/21 11:37  
am  
Marita Raper

(tibbettsmg):

Rollback to

Initiator

5. 08/17/21 11:16

am

Hu Yang (huyang):

Approved for

RCHEMENG Chair

6. 08/17/21 12:14

pm

Marita Raper

(tibbettsmg):

Approved for CCC

Secretary

7. 09/08/21 3:23 pm

Stephen Raper

(sraper): Rollback

to Initiator

8. 04/12/22 12:01

pm

Hu Yang (huyang):

Approved for

RCHEMENG Chair

9. 04/13/22 12:29

pm

Marita Raper

(tibbettsmg):

Approved for CCC

Secretary

10. 04/19/22 9:05 am

Stephen Raper

(sraper):

Approved for

Engineering DSCC

Chair

11. 04/20/22 2:34 pm

Marita Raper

(tibbettsmg):

Approved for

Pending CCC

Agenda post

12. 05/03/22 9:33 am

Marita Raper

(tibbettsmg):

Approved for CCC

Meeting Agenda

13. 05/03/22 9:37 am

Stephen Raper

(sraper):

Approved for

Campus Curricula

Committee Chair

## Colloid Chemistry and Interfacial Engineering

Experimental            Colloid Chemistry

Abbreviated

Course Title

Instructors            Monday Okoronkwo

Experimental

Catalog

Description

Fundamentals of colloid and surface chemistry, and interfacial engineering relevant to scientific frontiers including adhesives and coatings, separations, catalysis, adsorption and ion exchange, alloys, cement, ceramics, fibers, polymers, pollution control, food products, medicines, pharmaceuticals, microelectronics, mining and petroleum recovery, and more.

Prerequisites

Chemistry 1320, Senior standing or Graduate standing.

Field Trip  
Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Justification for

new course:

New elective course in area of research of Dr Okoronkwo with multidisciplinary relevance.

Removed all co-lists

Semester(s)

previously taught

n/a

Co-Listed

Courses:

Course Reviewer

Comments

**kristyg (03/04/21 9:31 am):** Rollback: Dr. Luks, at this time we cannot approve this course with all of the co-lists. All departments will need to be in agreeance and have approval. At this time in the EC stage this many co-lists can cause a lot of issues. And if your discipline did not have a successful enrollment that could mean that you could possibly not be the primary.

**tibbettsmg (07/20/21 11:37 am):** Rollback: rollback per KGF email on 7/20. mt

**sraper (09/08/21 3:23 pm):** Rollback: Christi, There are objections to the current prereq in that non Chem eng majors could take it w/out appropriate background.

Can you reconsider and submit again please.

**tibbettsmg (04/13/22 12:29 pm):** updated term to FS22. MR

Key: 4794

[Preview Bridge](#)

# Course Change Request

## New Experimental Course Proposal

Date Submitted: 04/05/22 10:28 am

Viewing: **COMP ENG 4001.001 : Practicum in  
Computer Engineering**

File: 4870

Last edit: 04/12/22 11:58 am

Changes proposed by: kte

Requested                      Fall 2022

Effective Change

Date

Department                    Electrical and Computer Engineering

Discipline                      Computer Engineering (COMP ENG)

Course Number                4001

Topic ID                        001

Experimental

Title

### In Workflow

1. RELECENG Chair
2. CCC Secretary
3. Engineering DSCC  
Chair
4. Pending CCC  
Agenda post
5. CCC Meeting  
Agenda
6. Campus Curricula  
Committee Chair
7. CAT entry
8. Registrar

### Approval Path

1. 04/05/22 10:27  
am  
Marita Raper  
(tibbettsmg):  
Rollback to  
Initiator
2. 04/05/22 3:10 pm  
Watkins  
(watkins):  
Approved for  
RELECENG Chair
3. 04/12/22 11:58  
am  
Marita Raper

(tibbettsmg):  
Approved for CCC  
Secretary

4. 04/19/22 9:06 am

Stephen Raper  
(sraper):

Approved for  
Engineering DSCC  
Chair

5. 04/20/22 2:35 pm

Marita Raper  
(tibbettsmg):

Approved for  
Pending CCC  
Agenda post

6. 05/03/22 9:33 am

Marita Raper  
(tibbettsmg):

Approved for CCC  
Meeting Agenda

7. 05/03/22 9:37 am

Stephen Raper  
(sraper):

Approved for  
Campus Curricula  
Committee Chair

## Practicum in Computer Engineering

Experimental      Practicum in CpE  
Abbreviated  
Course Title

Instructors      R. Joe Stanley

Experimental  
Catalog

### Description

Students on an approved internship or cooperative education assignment with industry will complete a project designed by the Computer Engineering Undergraduate Coordinator and employer. The project selected must be related to topics in one or more of the prerequisite courses. Only one instance of this course can be applied to BS degree requirements.

### Prerequisites

Comp Eng 3110 or Comp Eng 3150. The same work period cannot receive credit for this course and Comp Eng 3002 or Elec Eng 3002 or Elec Eng 4380.

### Field Trip

#### Statement

No field trips

#### Credit Hours

LEC: 0

LAB: 3

IND: 0

RSD: 0

Total: 3

### Justification for

new course:

Justification: This course is created in response to the dean's request to find ways to reduce students' to graduation. Modeled on the existing EE 4380, Practicum in Automation Engineering.

### Semester(s)

previously taught

None

### Co-Listed

Courses:

### Course Reviewer

#### Comments

**tibbettsmg (04/05/22 10:27 am):** Rollback: rollback per request.

**tibbettsmg (04/12/22 11:58 am):** updated prereq formatting. Removed "department permission" as that is a given.

Key: 4870

[Preview Bridge](#)

# Course Change Request

## New Experimental Course Proposal

Date Submitted: 04/05/22 10:28 am

Viewing: **ELEC ENG 4001.001 : Practicum in  
Electrical Engineering**

File: 4869

Last edit: 04/12/22 11:56 am

Changes proposed by: kte

Requested                      Fall 2022

Effective Change

Date

Department                    Electrical and Computer Engineering

Discipline                      Electrical Engineering (ELEC ENG)

Course Number                4001

Topic ID                        001

Experimental

Title

### In Workflow

1. RELECENG Chair
2. CCC Secretary
3. Engineering DSCC  
Chair
4. Pending CCC  
Agenda post
5. CCC Meeting  
Agenda
6. Campus Curricula  
Committee Chair
7. CAT entry
8. Registrar

### Approval Path

1. 04/05/22 10:27  
am  
Marita Raper  
(tibbettsmg):  
Rollback to  
Initiator
2. 04/05/22 3:10 pm  
Watkins  
(watkins):  
Approved for  
RELECENG Chair
3. 04/12/22 11:56  
am  
Marita Raper

(tibbettsmg):

Approved for CCC

Secretary

4. 04/19/22 9:06 am

Stephen Raper

(sraper):

Approved for

Engineering DSCC

Chair

5. 04/20/22 2:38 pm

Marita Raper

(tibbettsmg):

Approved for

Pending CCC

Agenda post

6. 05/03/22 9:33 am

Marita Raper

(tibbettsmg):

Approved for CCC

Meeting Agenda

7. 05/03/22 9:37 am

Stephen Raper

(sraper):

Approved for

Campus Curricula

Committee Chair

Practicum in Electrical Engineering

Experimental Practicum in EE

Abbreviated

Course Title

Instructors Kelvin Erickson

Experimental

Catalog

**Description**

Students on an approved internship or cooperative education assignment with industry will complete a project designed by the Electrical Engineering Undergraduate Coordinator and employer. The project selected must be related to topics in one or more of the prerequisite courses. Only one instance of this course can be applied to BS degree requirements.

**Prerequisites**

Elec Eng 3100 or Elec Eng 3250 or Elec Eng 3320 or Elec Eng 3430 or Elec Eng 3500 or Elec Eng 3540 or Elec Eng 3600. The same work period cannot receive credit for this course and Elec Eng 3002 or Elec Eng 4380 or Comp Eng 3002.

**Field Trip****Statement**

No field trips

Credit Hours

LEC: 0

LAB: 3

IND: 0

RSD: 0

Total: 3

**Justification for  
new course:**

This course is created in response to the dean's request to find ways to reduce students' to graduation. Modeled on the existing EE 4380, Practicum in Automation Engineering.

**Semester(s)****previously taught**

None

**Co-Listed****Courses:****Course Reviewer****Comments**

**tibbettsmg (04/05/22 10:27 am):** Rollback: rollback per request. mr

**tibbettsmg (04/12/22 11:56 am):** updated prereq formatting. removed "department permission" as that is a given.

[Preview Bridge](#)

# Course Change Request

## New Experimental Course Proposal

Date Submitted: 04/19/22 8:44 am

Viewing: **TCH COM 3001.002 : Video Design and Editing**

File: 4873

Last edit: 04/20/22 11:44 am

Changes proposed by: reardond

Requested Spring 2023

Effective Change

Date

Department English and Technical Communication

Discipline Technical Communication (TCH COM)

Course Number 3001

Topic ID 002

Experimental

Title

### In Workflow

1. **REGLISH Chair**
2. **CCC Secretary**
3. **Arts & Humanities DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **CAT entry**
8. Registrar

### Approval Path

1. 04/19/22 10:32 am  
Kristine Swenson (kswenson):  
Approved for REGLISH Chair
2. 04/20/22 11:45 am  
Marita Raper (tibbettsmg):  
Approved for CCC Secretary
3. 04/20/22 11:49

am

Petra Dewitt

(dewittp):

Approved for Arts

&amp; Humanities

DSCC Chair

4. 04/20/22 2:26 pm

Marita Raper

(tibbettsmg):

Approved for

Pending CCC

Agenda post

5. 05/03/22 9:34 am

Marita Raper

(tibbettsmg):

Approved for CCC

Meeting Agenda

6. 05/03/22 9:38 am

Stephen Raper

(sraper):

Approved for

Campus Curricula

Committee Chair

## Video Design and Editing

Experimental      Video Design and Editing

Abbreviated

Course Title

Instructors      Daniel Reardon, Elizabeth Reardon

Experimental

Catalog

Description

Principles of visual design, vocal narration, and audio selection to create videos for both academic and professional purposes. Course includes extensive practice in

video production.

#### Prerequisites

English 1600 or Tch Com 1600.

#### Field Trip

#### Statement

Credit Hours

LEC: 3

LAB: 1

IND: 0

RSD: 0

Total: 4

Justification for  
new course:

Students have been requesting a video design and editing course. Businesses and industries also increasingly desire video production skills for communication specialists.

Semester(s)

previously taught

0

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (04/20/22 11:44 am):** formatted prerequisites and removed "permission of instructor" as that is not needed. MR

Key: 4873

[Preview Bridge](#)