

## Minutes of the Campus Curricula Committee Meeting

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**March 17, 2026**

**8:15 am, Fulton Hall 120**

**(For Faculty Senate Meeting of April 16, 2026)**

**Attendees:** Cecil Eng Huang Chua, Katie Shannon, Michael Davis, Theresa Swift, Cihan Dagli, Kyle Perry, Alejandra Sobrado, Crystal Wilson, and Hannah Johnson.

*The following curriculum forms were discussed and approved:*

**Course Change forms:**

File: 5024 BME 5200 : Materials as Hard Tissue Devices  
File: 4975 CHEM 2420 : Physical Chemistry II  
File: 2301 CHEM 4710 : Principles Of Environmental Chemistry  
File: 2315 CHEM 5510 : Introduction to Chemical Analysis  
File: 5773 CHEM 5710 : Environmental Chemistry  
File: 4281 CHEM ENG 3141 : Process Operations in Chemical and Biochemical Engineering  
File: 4285 CHEM ENG 4091 : Chemical Process Design I  
File: 2072 CHEM ENG 4110 : Chemical Engineering Process Dynamics And Control  
File: 4284 CHEM ENG 4201 : Biochemical Separations and Control Laboratory  
File: 1607 CHEM ENG 4210 : Biochemical Reactors  
File: 797 CHEM ENG 4220 : Biochemical Reactor Laboratory  
File: 60 CHEM ENG 4311 : Professional Practice and Ethics  
File: 1782 CHEM ENG 5120 : Interfacial Phenomena In Chemical Engineering  
File: 1970 CHEM ENG 5150 : Intermediate Process Computing  
File: 4290 CHEM ENG 5250 : Isolation and Purification of Biologicals  
File: 2048 CHEM ENG 5305 : Hazardous Materials Management  
File: 4032 ELEC ENG 4380 : Practicum in Automation Engineering  
File: 4840 STAT 5210 : Statistical Data Analysis Using R  
File: 4993 STAT 5270 : Foundations of Statistical Learning  
File: 4998 STAT 5364 : Causal Data Science

**Program Change forms:**

File: 30 A&E BIO-MS : Biological Science MS  
File: 253 AI-MI : Minor in Artificial Intelligence and Machine Learning in Business  
File: 254 AUTOENG-CTU : Undergraduate Certificate in Automation Engineering  
File: 230 AUTOENG-MI : Minor in Automation Engineering  
File: 150 CH ENG-BS : Chemical Engineering BS  
File: 151 CHEM-BA : Chemistry BA  
File: 153 CP ENG-BS : Computer Engineering BS  
File: 344 EDUC-BS : Education BS  
File: 155 EL ENG-BS : Electrical Engineering BS

File: 231 EL ENG-MI : Minor in Electrical Engineering  
File: 217 FRENCH-MI : French Minor  
File: 355 GEO ENG-PHD : Geological Engineering PhD  
File: 218 GERMAN-MI : German Minor  
File: 431 PROPOSED : Data Science BS  
File: 432 PROPOSED : Data Science MS  
File: 437 PROPOSED : Disaster Management CT  
File: 434 PROPOSED : Environmental Conservation CT  
File: 436 PROPOSED : Environmental Health & Safety CT  
File: 439 PROPOSED : Systems Engineering Minor  
File: 219 RUSS-MI : Russian Minor  
File: 220 SPAN-MI : Spanish Minor  
File: 133 TCH CM-MIG : Technical Communication Minor

**Experimental Course forms:**

None.

*The following Degree Change form was rolled back to the department:*

File: 123 PRE-MED-MI : Pre-Medicine Minor

**New Business:**

None.

The meeting adjourned at 9:09 am.

A handwritten signature in black ink, appearing to be "Cecil Eng Huang Chua", written over a horizontal line.

Dr. Cecil Eng Huang Chua, Chair  
Missouri S&T Campus Curricula Committee

# Course Change Request

Date Submitted: 02/19/26 6:04 pm

## Viewing: **BME 5200 : Materials as Hard Tissue Devices**

Also listed as: **CHEM ENG 5270**

Last approved: 09/24/25 6:04 am

Last edit: 02/19/26 6:04 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

**BME 5200:**

[CR ENG-BS: Ceramic Engineering BS](#)

[BIOMED-BS: Biomedical Engineering BS](#)

Requested Effective Date	Fall 2026
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Biomedical Engineering (BME)
Course Number	5200
Title	Materials as Hard Tissue Devices
Abbreviated Course Title	Hard Tissue Devices
Co-Listed Course	CHEM ENG 5270

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. 02/19/26 6:32 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 2:27 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:16 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

(RCHEMENG)

Catalog Description

for Pending CCC  
Agenda post  
5. 03/23/26 8:21 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda  
6. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

History

1. May 17, 2024 by  
Christi Luks (luksc)
2. Sep 24, 2025 by Jee  
C. Wang (jcwang)

This course considers the ~~The~~ structure-property relationships of materials employed as medical devices, as well as the bone ~~the bone, cartilage,~~ and dentition ~~ligament~~ that they are designed to replace. The course will also consider ~~behavior of materials in~~ the behavior of ~~materials in~~ physiological environment, the physiological environment, the tailoring of that behavior as a response to both bulk and surface properties, and the ~~the~~ future of hard tissue medical devices.

Prerequisite(s):

BME 4100 or MS&E 5210.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

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Required for Majors	No
Elective for Majors	Yes
Communication Intensive	No
Communication Emphasized	No
Grading Basis	Graded
Repeatable	No

**Justification**

Update to reflect actual course content and needs of the curriculum

**Semesters Previously Offered**

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Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

# Course Change Request

Date Submitted: 02/20/26 12:34 pm

Viewing: **CHEM 2420 : Physical Chemistry II**

Last approved: 03/25/24 6:02 am

Last edit: 02/20/26 12:34 pm

Changes proposed by: Klaus Woelk (woelkk)

Programs  
referencing this  
course

[CHEM-BS: Chemistry BS](#)

Other Courses  
referencing this  
course

[In The Catalog Prerequisites:](#)

[CHEM 2459 : Accelerated Physical Chemistry Laboratory](#)

Requested Effective Date	Fall 2026
Department	Chemistry (RCHEMIST)
Discipline	Chemistry (CHEM)
Course Number	2420
Title	Physical Chemistry II
Abbreviated Course Title	Physical Chemistry II
Co-Listed Course	

Catalog 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. CAT entry
11. Peoplesoft

## Approval Path

1. 02/20/26 2:42 pm  
Chariklia Sotiriou-Leventis (cslevent):  
Approved for  
RCHEMIST Chair
2. 02/23/26 11:45 am  
Hannah Johnson (hjh9x): Approved  
for CCC Secretary
3. 02/26/26 4:28 pm  
Katie Shannon (shannonk):  
Approved for  
Sciences DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved  
for Pending CCC

- Agenda post
5. 03/23/26 8:21 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda
6. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Mar 25, 2024 by  
Thomas Schuman  
(tschuman)

A study of statistical approaches to thermodynamics, kinetic theory, and chemical kinetics, including the quantum theory of atoms, molecular structures, and molecular spectroscopy.

Prerequisite(s):

Physics 2111 or Physics 2135, Math 2222, and Chem 2410 or Chem Eng 3120. ~~2410~~.

Corequisite(s):

### Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors Yes

Elective for Majors No

Communication  
Intensive

Communication

Emphasized

Grading Basis

Graded

Repeatable

No

Justification

Chemical Engineering student wishing to take Chem 2420 as elective course receive an education similar to prerequisite Chem 2410 through Chem Eng 3120.

### Semesters Previously Offered

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Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

Key: 4975

[Preview Bridge](#)

# Course Change Request

Date Submitted: 02/02/26 5:47 pm

Viewing: **CHEM 4710 : Principles Of**

## **Environmental Chemistry Monitoring**

Last approved: 04/25/14 3:05 pm

Last edit: 02/05/26 8:36 am

Changes proposed by: Klaus Woelk (woelkk)

Programs  
referencing this  
course

[WATERSC-MS: Water Science and Engineering MS](#)

[ENV SCI-BS: Environmental Science BS](#)

Other Courses  
referencing this  
course

[In The Catalog Description:](#)

[CHEM 5710 : Environmental Chemistry](#)

Requested Effective Date      Fall 2026

Department                      Chemistry (RCHEMIST)

Discipline                        Chemistry (CHEM)

Course Number                4710

Title  
Principles Of Environmental Chemistry **Monitoring**

Abbreviated Course Title      Prin Env Chemistry **Monitoring**

Co-Listed Course

### 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. 01/19/26 7:34 pm  
Chariklia Sotiriou-Leventis (cslevent):  
Approved for  
RCHEMIST Chair
2. 01/22/26 2:04 pm  
Crystal Wilson  
(wilsoncry):  
Rollback to Initiator
3. 02/03/26 5:34 am  
Chariklia Sotiriou-Leventis (cslevent):  
Approved for  
RCHEMIST Chair
4. 02/05/26 8:40 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Secretary

## Catalog Description

5. 02/26/26 4:29 pm  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC Chair
6. 03/02/26 12:10 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post
7. 03/23/26 8:39 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda
8. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Apr 25, 2014 by  
Lahne Black (lahne)

This course provides a broad overview of chemical processes in air, water, soil, and biological environments with specific emphasis on the origin, transport, fate, and remediation of anthropogenic pollutants. Credit may not be given for both CHEM 5710 and CHEM 4710. This course provides an overview of environmental monitoring methodologies. Discussion covers thermodynamic and kinetic processes that affect chemical transport and fate in the environment. Federal environmental regulations and remediation technologies are also covered with specific examples.

Prerequisite(s):

Chem 2210. ~~Chem 2210; Physics 1111 or Physics 1135.~~

Corequisite(s):

## Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors No ~~Yes~~

Elective for Majors Yes ~~No~~

Communication Intensive No

Communication Emphasized No

Grading Basis Graded

Repeatable No

### Justification

Title change: The focus of the course shifts slightly from physical, analytical methods to chemistry of environmental and emerging pollutants.

Prerequisites: eliminate Physics 1111 or Physics 1135 as prerequisite, because they are no longer needed for success in the course.

## Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer

Comments

**Crystal Wilson (wilsoncry) (01/22/26 2:04 pm):** Rollback: Rollback per Dr. Woelk's request.

**Hannah Johnson (hjh9x) (02/05/26 8:36 am):** Added a period after the prerequisite. I

answered no for communication intensive and communication emphasized. Per Dr. Woelk: The revisions to the course description reflect updates that align the material with current advances

in environmental monitoring and environmental chemistry. While the emphasis has shifted modestly toward environmental processes, the overall course content will not change by more than 50% and is expected to change by considerably less.

Key: 2301

[Preview Bridge](#)

# Course Change Request

Date Submitted: 12/30/25 8:36 pm

Viewing: **CHEM 5510 : Introduction to Chemical Analysis**

Last edit: 02/12/26 3:05 pm

Changes proposed by: Klaus Woelk (woelkk)

Programs  
referencing this  
course

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

Requested Effective Date	Spring 2027
Department	Chemistry (RCHEMIST)
Discipline	Chemistry (CHEM)
Course Number	5510
Title	Introduction to Chemical Analysis
Abbreviated Course Title	Intro to Chemical Analysis
Co-Listed Course	

Catalog 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. CAT entry
11. Peoplesoft

## Approval Path

1. 04/18/24 9:11 am  
Chariklia Sotiriou-Leventis (cslevent):  
Approved for  
RCHEMIST Chair
2. 04/29/24 11:01 am  
Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 01/15/26 8:13 am  
Chariklia Sotiriou-Leventis (cslevent):  
Approved for  
RCHEMIST Chair
4. 01/21/26 9:05 am  
Crystal Wilson (wilsoncry):  
Approved for CCC

- Secretary
5. 02/12/26 3:05 pm  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC Chair
6. 03/02/26 12:09 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post
7. 03/23/26 8:22 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda
8. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

Principles and analytical applications of molecular spectroscopy, chromatographic separations, mass spectrometry, and radiochemistry. A brief overview of instrument electronics, signal generation and processing, and automated analysis is also provided. Graduate students are expected to achieve a higher level of proficiency on application and assessments compared to Chem 4510 students. Students may not receive credit for both Chem 4510 and 5510.

Prerequisite(s):

Chem 3510, ~~1100, Chem 2510, Chem 2220, Chem 3430.~~

Corequisite(s):

### Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Credit Type	Credit Hours
Laboratory	1

Total: 4

Required for Majors No

Elective for Majors Yes ~~No~~

Communication No

Intensive

Communication No

Emphasized

Grading Basis Graded

Repeatable No

#### Justification

Adjusting prerequisites to those of CHEM 4510 because Chem 4510 and 5510 are taught together as one course.

#### Semesters Previously Offered

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Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer

Comments

**Jennifer Pohlsander (jpnfd) (04/29/24 11:01 am):** Rollback: Please update effective date to Spring 2025 or Fall 2025.

**Crystal Wilson (wilsoncry) (01/21/26 9:05 am):** Changed effective term to spring 2027 per CCC deadlines.

# Course Change Request

Date Submitted: 02/02/26 5:51 pm

Viewing: **CHEM 5710 : Environmental Chemistry**

## **Monitoring**

Last edit: 02/05/26 8:51 am

Changes proposed by: Klaus Woelk (woelkk)

Programs  
referencing this  
course

[WATERSC-MS: Water Science and Engineering MS](#)

[PROPOSED: Environmental Conservation CT](#)

[26.1307:](#)

Requested Effective Date	Fall 2026
Department	Chemistry (RCHEMIST)
Discipline	Chemistry (CHEM)
Course Number	5710
Title	Environmental <u>Chemistry</u> <b>Monitoring</b>
Abbreviated Course Title	Environmental <u>Chemistry</u> <b>Monitoring</b>
Co-Listed Course	

Catalog 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. CAT entry
11. Peoplesoft

### Approval Path

1. 01/19/26 7:34 pm  
Chariklia Sotiriou-Leventis (cslevent):  
Approved for  
RCHEMIST Chair
2. 01/22/26 2:04 pm  
Crystal Wilson  
(wilsoncry):  
Rollback to Initiator
3. 02/03/26 5:34 am  
Chariklia Sotiriou-Leventis (cslevent):  
Approved for  
RCHEMIST Chair
4. 02/05/26 8:51 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Secretary

5. 02/26/26 4:29 pm  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC Chair
6. 03/02/26 12:10 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post
7. 03/23/26 8:58 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda
8. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

This course provides a study of chemical processes in air, water, soil, and biological environments with specific emphasis on the origin, transport, fate, and remediation of anthropogenic pollutants. ~~This course provides an overview of environmental monitoring methodologies. Discussion covers thermodynamic and kinetic processes that affect chemical transport and fate in the environment. Federal environmental regulations and remediation technologies are also covered with specific examples.~~ Credit may not be given for both CHEM Chem 5710 and CHEM Chem 4710.

Prerequisite(s):

Chem 2210. ~~Chem 2210, Physics 2111.~~

Corequisite(s):

### Credit Hours

Credit Hours

Credit Type

Credit Hours

Credit Type		Credit Hours
Lecture		3
Total:	3	

Required for Majors No

Elective for Majors Yes

Communication No

Intensive

Communication No

Emphasized

Grading Basis Graded

Repeatable No

#### Justification

Change course title because the focus of the course shifts slightly from physical, analytical methods to chemistry of environmental and emerging pollutants.

Adjusting prerequisites to those of Chem 4710 because Chem 4710 and 5710 are taught together as one course.

#### Semesters Previously Offered

---

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer

Comments

**Crystal Wilson (wilsoncry) (01/22/26 2:04 pm):** Rollback: Rollback per Dr. Woelk's request.  
**Hannah Johnson (hjh9x) (02/05/26 8:51 am):** Added a period after the prerequisite course. I answered no for CI and CE. Per Dr. Woelk: The revisions to the course description reflect updates that align the material with current advances in environmental monitoring and environmental chemistry. While the emphasis has shifted modestly toward environmental processes, the overall course content will not change by more than 50% and is expected to change by considerably less.



# Course Change Request

Date Submitted: 02/19/26 6:02 pm

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

Last approved: 06/16/22 6:01 am

Last edit: 02/23/26 12:09 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

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

[BIOMED-BS: Biomedical Engineering BS](#)

Other Courses  
referencing this  
course

[In The Catalog 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](#)

### 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. 02/19/26 6:32 pm  
Ryan Gilbert  
(rggnx): Approved for RCHEMENG Chair
2. 02/23/26 11:47 am  
Hannah Johnson  
(hjh9x): Approved for CCC Secretary
3. 02/27/26 11:07 am  
Theresa Swift  
(thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson  
(hjh9x): Approved

Requested Effective Date	Fall 2026
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Chemical Engineering (CHEM ENG)
Course Number	3141
Title	Process Operations in Chemical and Biochemical Engineering

Abbreviated Course Title      Process Operations

Title

Co-Listed Course

Catalog Description

for Pending CCC

Agenda post

5. 03/23/26 8:22 am

Hannah Johnson

(hjh9x): Approved

for CCC Meeting

Agenda

6. 03/23/26 12:01 pm

Cecil Eng Huang

Chua (cchua):

Approved for

Campus Curricula

Committee Chair

## History

1. May 24, 2016 by

Daniel Forciniti

(forciniti)

2. Jun 25, 2018 by

Daniel Forciniti

(forciniti)

3. Jun 16, 2022 by

Christi Luks (luksc)

Design and selection of pipe systems, pumps, fans, compressors, valves, and ejectors. Design and selection of reactors ~~heat exchangers, condensers~~ and distillation equipment. ~~reboilers.~~ Design of pressure vessels to ASME design standard. Design of agitation and mixing equipment, filtration, ~~sterilizers, sedimentation vessels, centrifuges, and filtration~~ and crystallization ~~ultrafiltration~~ units. Introduction to biochemical unit operations (liquid chromatography, lyophilization, and diafiltration) and control equipment.

Prerequisite(s):

Chem Eng 3101 and Chem Eng 3120.

Corequisite(s):

## Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors Yes

Elective for Majors No

Communication No  
Intensive

Communication No  
Emphasized

Grading Basis Graded

Repeatable No

#### Justification

Updated to reflect the current content of the course.

#### Semesters Previously Offered

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Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/23/26 8:09 am):** Per email received on 2/23/26 from Christi Luks, the change of the course is less than 50%. The change is more like 5%.

Key: 4281

[Preview Bridge](#)

# Course Change Request

Date Submitted: 02/19/26 6:03 pm

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

## Design I

Last approved: 06/16/22 6:01 am

Last edit: 02/20/26 3:39 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

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

Other Courses  
referencing this  
course

[In The Catalog Prerequisites:](#)

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

Requested Effective Date	Fall 2026
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4091
Title	Chemical Process Design I
Abbreviated Course Title	Chem Process Design I
Co-Listed Course	

### 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. 02/19/26 6:32 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 2:47 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:16 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

## Catalog Description

for Pending CCC  
Agenda post  
5. 03/23/26 8:23 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda  
6. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Jan 10, 2017 by  
Daniel Forciniti  
(forcinit)
2. Mar 6, 2017 by  
kristyg
3. Feb 4, 2019 by Jee  
C. Wang (jcwang)
4. May 3, 2021 by  
Christi Luks (luksc)
5. Jun 16, 2022 by  
Christi Luks (luksc)

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. [Design of heat exchangers, condensers, and reboilers.](#)

### Prerequisite(s):

Chem Eng 3131 and Chem Eng 3141; preceded or accompanied by Chem Eng 3150; preceded or accompanied by either English 3560 or English 1160.

### Corequisite(s):

## Credit Hours

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Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors Yes

Elective for Majors No

Communication No  
Intensive

Communication No  
Emphasized

Grading Basis Graded

Repeatable No

Justification

Updated to reflect current content of course.

## Semesters Previously Offered

---

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

# Course Change Request

Date Submitted: 02/19/26 5:55 pm

Viewing: **CHEM ENG 4110 : Chemical**

## **Engineering Process Dynamics And Control**

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

Last edit: 02/20/26 3:40 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

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

[AUTOENG-MI: Minor in Automation Engineering](#)

[AUTOEN-CTU: Undergraduate Certificate in Automation Engineering](#)

[SPACE R-CT: Space Resources Certificate](#)

[BIOMED-BS: Biomedical Engineering BS](#)

[SEMI EN-BS: Semiconductor Engineering BS](#)

Other Courses  
referencing this  
course

[In The Catalog Prerequisites:](#)

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

[CHEM ENG 5190 : Plantwide Process Control](#)

[CHEM ENG 5355 : Process Control System Safety, Security and Alarms](#)

[ELEC ENG 5350 : Plantwide Process Control](#)

[ELEC ENG 5355 : Process Control System Safety, Security and Alarms](#)

Requested Effective Date	Fall 2026
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Chemical Engineering (CHEM ENG)

### 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. 02/19/26 6:32 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 2:48 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:16 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

Course Number 4110  
 Title  
 Chemical Engineering Process Dynamics And Control  
 Abbreviated Course Process Control  
 Title  
 Co-Listed Course

for Pending CCC  
 Agenda post  
 5. 03/23/26 8:23 am  
 Hannah Johnson  
 (hjh9x): Approved  
 for CCC Meeting  
 Agenda  
 6. 03/23/26 12:01 pm  
 Cecil Eng Huang  
 Chua (cchua):  
 Approved for  
 Campus Curricula  
 Committee Chair

Catalog Description

History

1. May 24, 2016 by Daniel Forciniti (forciniti)
2. May 3, 2021 by Christi Luks (luksc)

Study of the dynamics of chemical processes and the instruments and software used to measure and control temperature, pressure, liquid level, flow, and composition. ~~Generally offered fall semester only.~~

Prerequisite(s):

Chem Eng 3150, Chem Eng 3131 and Chem Eng 3141.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors Yes

Elective for Majors	No
Communication Intensive	<u>No</u>
Communication Emphasized	<u>No</u>
Grading Basis	Graded
Repeatable	No

#### Justification

This course is now offered every semester

#### **Semesters Previously Offered**

---

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

# Course Change Request

Date Submitted: 02/19/26 5:53 pm

Viewing: **CHEM ENG 4201 : Biochemical Separations and Control Laboratory**

Last approved: 10/26/24 6:03 am

Last edit: 02/20/26 3:41 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

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

[BIOMED-BS: Biomedical Engineering BS](#)

Requested Effective Date	Fall 2026
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4201
Title	Biochemical Separations and Control Laboratory
Abbreviated Course Title	Bioseparations Lab
Co-Listed Course	

Catalog Description

## 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. 02/19/26 6:32 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 2:55 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:16 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

- for Pending CCC  
Agenda post
5. 03/23/26 8:23 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda
6. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. May 24, 2016 by Daniel Forciniti (forciniti)
2. Feb 4, 2019 by Jee C. Wang (jcwang)
3. Jul 27, 2020 by Jee C. Wang (jcwang)
4. Oct 26, 2024 by Christi Luks (luksc)

Introduction to the unit operations employed in the separation of chemicals and biochemicals. The experiments illustrate the staged and continuous separation systems that are involved. Application of concepts of industrial process dynamics and control. Communications emphasized. Generally offered in fall.

### Prerequisite(s):

Stat 3113 or Stat 3115 or Stat 3425; Preceded or accompanied by Chem Eng 5250.

### Corequisite(s):

## Credit Hours

Credit Hours

Credit Type

Credit Hours

Credit Type	Credit Hours
Lecture	1
Laboratory	2

Total: 3

Required for Majors Yes

Elective for Majors No

Communication Intensive No

Communication Emphasized Yes

Grading Basis Graded

Repeatable No

Justification

Added language about timing of once a year courses

**Semesters Previously Offered**

---

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

# Course Change Request

Date Submitted: 02/19/26 5:51 pm

## Viewing: **CHEM ENG 4210 : Biochemical Reactors**

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

Last edit: 02/20/26 3:41 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

[CH ENG-BS: Chemical Engineering BS](#)  
[BIOMED-MI: Biomedical Engineering Minor](#)  
[WATERSC-MS: Water Science and Engineering MS](#)  
[BIOMED-BS: Biomedical Engineering BS](#)  
[BIOENG-PHD: Bioengineering PhD](#)

Other Courses  
referencing this  
course

[In The Catalog Prerequisites:](#)  
[CHEM ENG 4220 : Biochemical Reactor Laboratory](#)

Requested Effective Date	Fall 2026
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4210
Title	Biochemical Reactors
Abbreviated Course	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. 02/19/26 6:32 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 3:02 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:16 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

Title

Co-Listed Course

Catalog Description

for Pending CCC  
 Agenda post  
 5. 03/23/26 8:23 am  
 Hannah Johnson  
 (hjh9x): Approved  
 for CCC Meeting  
 Agenda  
 6. 03/23/26 12:01 pm  
 Cecil Eng Huang  
 Chua (cchua):  
 Approved for  
 Campus Curricula  
 Committee Chair

### History

1. May 4, 2015 by  
Christi Luks (luksc)
2. May 24, 2016 by  
Daniel Forciniti  
(forcinit)

Application of chemical engineering principles to biochemical reactors. Emphasis on enzyme catalyzed reactors, cells as reactors, bioreactor types ~~chemical reactors, enzyme catalysis~~ and designs, and disposable technology. Generally offered in spring.

Prerequisite(s):

Chem Eng 3150 or graduate standing.

Corequisite(s):

### Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors Yes

Elective for Majors	No
Communication Intensive	<u>No</u>
Communication Emphasized	<u>No</u>
Grading Basis	Graded
Repeatable	No

#### Justification

Change to language of what is taught to reflect current emphasis and added language about time the course is offered.

#### **Semesters Previously Offered**

---

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

Key: 1607

[Preview Bridge](#)

# Course Change Request

Date Submitted: 02/19/26 5:52 pm

## Viewing: **CHEM ENG 4220 : Biochemical Reactor Laboratory**

Last approved: 10/26/24 6:03 am

Last edit: 02/20/26 3:42 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

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

[BIOMED-BS: Biomedical Engineering BS](#)

[BIOENG-PHD: Bioengineering PhD](#)

Requested Effective Date	Fall 2026
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4220
Title	Biochemical Reactor Laboratory
Abbreviated Course Title	Bioreactor Laboratory
Co-Listed Course	

Catalog Description

### 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. 02/19/26 6:33 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 3:03 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:16 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

for Pending CCC

Agenda post

5. 03/23/26 8:23 am

Hannah Johnson

(hjh9x): Approved

for CCC Meeting

Agenda

6. 03/23/26 12:01 pm

Cecil Eng Huang

Chua (cchua):

Approved for

Campus Curricula

Committee Chair

## History

1. Oct 21, 2016 by Daniel Forciniti (forcinit)
2. Aug 1, 2020 by Jee C. Wang (jcwang)
3. May 4, 2021 by Christi Luks (luksc)
4. May 17, 2024 by Christi Luks (luksc)
5. Oct 26, 2024 by Christi Luks (luksc)

Introduction to the unit operations involved with the production of biochemicals. The experiments emphasize the isolation of proteins and enzymes from tissue and bacteria cells.

This is a communications emphasized course. [Generally offered in spring.](#)

Prerequisite(s):

Stat 3113 or Stat 3115 or Stat 3425; Preceded or accompanied by Chem Eng 4210.

Corequisite(s):

### Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	1
Laboratory	2

Total: 3

Required for Majors Yes

Elective for Majors No

Communication No  
Intensive

Communication Yes  
Emphasized

Grading Basis Graded

Repeatable No

#### Justification

Added language about timing of once a year courses.

#### Semesters Previously Offered

---

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

# Course Change Request

Date Submitted: 02/19/26 5:50 pm

Viewing: **CHEM ENG 4311 : Professional Practice and And Ethics**

Formerly known as: **CHEM ENG 2310**

Last approved: 07/03/21 6:01 am

Last edit: 02/20/26 3:42 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

**CHEM ENG 4311:**

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

Requested Effective Date      Fall 2026

Department                      Chemical and Biochemical Engineering (RCHEMENG)

Discipline                        Chemical Engineering (CHEM ENG)

Course Number                 4311

Title  
Professional Practice and ~~And~~ Ethics

Abbreviated Course Title      Practice and ~~And~~ Ethics

Co-Listed Course

Catalog Description

## 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. 02/19/26 6:33 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 3:04 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:15 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

- for Pending CCC Agenda post
- 5. 03/23/26 8:23 am Hannah Johnson (hjh9x): Approved for CCC Meeting Agenda
- 6. 03/23/26 12:01 pm Cecil Eng Huang Chua (cchua): Approved for Campus Curricula Committee Chair

### History

- 1. Jul 3, 2021 by Christi Luks (luksc)

Preparation for post-graduate activities including resume writing and job searching.  
 Professional attitudes, practice, licensure, and ethics in the chemical engineering profession.  
~~Discussions led by visiting industrialists and other invited speakers.~~ Discussion of professional development including professional and graduate programs. Generally offered in spring, ~~fall~~.

Prerequisite(s):  
 Senior standing.

Corequisite(s):

#### Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	1

Total:                    1

Required for Majors    Yes

Elective for Majors    No

Communication Intensive	<u>No</u>
Communication Emphasized	<u>Yes</u>
Grading Basis	Graded
Repeatable	No

#### Justification

Update to timing of course to reflect current practices. Removed the part about guest speakers since that is not necessarily a part of the class. Changed the capitalization in the title to standard English.

### Semesters Previously Offered

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

# Course Change Request

Date Submitted: 02/19/26 5:47 pm

Viewing: **CHEM ENG 5120 : Interfacial Phenomena In Chemical Engineering**

Also listed as: **MIN ENG 5420**

Last approved: 03/01/25 6:03 am

Last edit: 02/20/26 3:43 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

**CHEM ENG 5120:**

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

[CM ENG-CT: Carbon Management Engineering CT](#)

[BIOENG-PHD: Bioengineering PhD](#)

Requested Effective Date	Fall 2026		
Department	Chemical and Biochemical Engineering (RCHEMENG)		
Discipline	Chemical Engineering (CHEM ENG)		
Course Number	5120		
Title	Interfacial Phenomena In Chemical Engineering		
Abbreviated Course Title	Interfac Phenomena Ch E		
Co-Listed Course	MIN ENG 5420	Department	Mining and Explosives

## 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. 02/19/26 6:33 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 3:06 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:17 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

Engineering  
(RMINENG)

Catalog Description

for Pending CCC  
Agenda post  
5. 03/23/26 8:23 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda  
6. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

History

1. Mar 2, 2020 by  
Christi Luks (luksc)
2. Mar 1, 2025 by  
Stephen Casey  
(caseysc)

The course deals with the effects of surfaces on transport phenomena and on the role of surface-active agents by applying the fundamentals of thermodynamics, momentum, heat and mass transfer at interfaces and of surfactants. ~~surface active agents. Topics include fundamentals of thermodynamics, momentum, heat and mass transfer at interfaces and of surfactants.~~ Some applications are included.

Prerequisite(s):

Chem Eng 3131 or graduate standing.

Corequisite(s):

**Credit Hours**

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

---

Required for Majors	No
Elective for Majors	Yes
Communication Intensive	<u>No</u>
Communication Emphasized	<u>No</u>
Grading Basis	Graded
Repeatable	No

Justification

Updated language with a grammar correction

### **Semesters Previously Offered**

---

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

# Course Change Request

Date Submitted: 02/19/26 5:46 pm

Viewing: **CHEM ENG 5150 : Intermediate**

## Process Computing

Last approved: 10/07/19 6:01 am

Last edit: 02/20/26 3:43 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

[CH ENG-MS: Chemical Engineering MS](#)  
[CHEMPRO-CT: Chemical Process Engineering CT](#)  
[CM ENG-CT: Carbon Management Engineering CT](#)  
[BIOENG-PHD: Bioengineering PhD](#)

Other Courses  
referencing this  
course

[In The Catalog Prerequisites:](#)  
[CHEM ENG 6180 : Advanced Applications of Computational Fluid Dynamics](#)

Requested Effective Date	Fall 2026
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Chemical Engineering (CHEM ENG)
Course Number	5150
Title	Intermediate Process Computing
Abbreviated Course	Int Process Computing

### 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. 02/19/26 6:33 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 3:07 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:17 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

Title

Co-Listed Course

Catalog Description

for Pending CCC  
 Agenda post  
 5. 03/23/26 8:23 am  
 Hannah Johnson  
 (hjh9x): Approved  
 for CCC Meeting  
 Agenda  
 6. 03/23/26 12:01 pm  
 Cecil Eng Huang  
 Chua (cchua):  
 Approved for  
 Campus Curricula  
 Committee Chair

### History

1. Oct 7, 2019 by Jee  
 C. Wang (jcwang)

Analysis of chemical processes from model development to solution using numerical computational techniques and tools to solve ordinary and partial differential equations.  
~~solution. Emphasis on numerical computational techniques and tools appropriate for ordinary and partial differential equationsolution.~~

Prerequisite(s):

Senior or Graduate standing.

Corequisite(s):

### Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	2
Laboratory	1

Total: 3

Required for Majors No

Elective for Majors	Yes
Communication Intensive	<u>No</u>
Communication Emphasized	<u>No</u>
Grading Basis	Graded
Repeatable	No

#### Justification

The course content has been modified so that it is not repeating the content of ChemEng 3111 and is now appropriate for our Senior undergraduates.

#### **Semesters Previously Offered**

---

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

# Course Change Request

Date Submitted: 02/19/26 5:53 pm

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

Last approved: 05/17/24 6:01 am

Last edit: 02/20/26 3:44 pm

Changes proposed by: Christi Luks (luksc)

### Programs

referencing this  
course

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

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

[BIOMED-BS: Biomedical Engineering BS](#)

[BIOENG-PHD: Bioengineering PhD](#)

### Other Courses

referencing this  
course

[In The Catalog Prerequisites:](#)

[BME 4091 : Biomedical Engineering Design I](#)

[BME 6500 : Pharmaceutical Process Engineering](#)

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

[CHEM ENG 5251 : Intermediate Bioseparations Laboratory](#)

Requested Effective Date	Fall 2026
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Chemical Engineering (CHEM ENG)
Course Number	5250
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. 02/19/26 6:33 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 3:12 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:16 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

## Isolation and Purification of Biologicals

Abbreviated Course Title    Iso and Purif of Biolog

Co-Listed Course

Catalog Description

for Pending CCC  
Agenda post  
5. 03/23/26 8:23 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda  
6. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

### History

1. May 24, 2016 by Daniel Forciniti (forciniti)
2. Jun 16, 2022 by Christi Luks (luksc)
3. May 17, 2024 by Christi Luks (luksc)

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. Generally offered in fall.

Prerequisite(s):

Preceded or accompanied by Chem Eng 3131, and Chem Eng 3141 or BME 3100.

Corequisite(s):

### Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors Yes

Elective for Majors No

Communication No  
Intensive

Communication No  
Emphasized

Grading Basis Graded

Repeatable No

#### Justification

Added language about timing of once a year classes

#### Semesters Previously Offered

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

# Course Change Request

Date Submitted: 02/19/26 5:43 pm

Viewing: **CHEM ENG 5305 : Hazardous Materials Management**

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

Last edit: 02/19/26 5:43 pm

Changes proposed by: Christi Luks (luksc)

Programs  
referencing this  
course

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

Requested Effective Date	Fall 2026
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Chemical Engineering (CHEM ENG)
Course Number	5305
Title	Hazardous Materials Management
Abbreviated Course Title	Hazardous Materials Mgt
Co-Listed Course	

Catalog Description

## 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. 02/19/26 6:33 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/24/26 11:03 am  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/27/26 11:07 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

for Pending CCC  
 Agenda post  
 5. 03/23/26 8:23 am  
 Hannah Johnson  
 (hjh9x): Approved  
 for CCC Meeting  
 Agenda  
 6. 03/23/26 12:02 pm  
 Cecil Eng Huang  
 Chua (cchua):  
 Approved for  
 Campus Curricula  
 Committee Chair

### History

1. Jul 27, 2020 by  
Christi Luks (luksc)
2. May 3, 2021 by  
Christi Luks (luksc)

Major themes: hazard identification ~~identification~~ and characterization; safety, health and environmental management; and the protection of safety, health and environment. Students will have an understanding of work place and environmental hazards in order to be able to facilitate their management and control. The course will include ~~an~~ intensive ~~30-hour~~ hands-on workshops over one or more weekends. ~~workshop~~

Prerequisite(s):

Chem Eng 3131 or graduate standing.

Corequisite(s):

### Credit Hours

Credit Hours

	Credit Type	Credit Hours
Lecture		3

Total: 3

Required for Majors No

Elective for Majors Yes

Communication  
Intensive

Communication  
Emphasized

Grading Basis Graded

Repeatable No

#### Justification

Correct a typo and update the wording about the workshop to be more informative.

#### Semesters Previously Offered

---

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

Key: 2048

[Preview Bridge](#)

# Course Change Request

Date Submitted: 02/23/26 3:32 pm

Viewing: **ELEC ENG 4380 : Practicum in**

## **Automation Engineering**

Last approved: 04/28/14 3:47 pm

Last edit: 02/26/26 9:29 am

Changes proposed by: Kelvin Erickson (kte)

Programs  
referencing this  
course

[AUTOENG-MI: Minor in Automation Engineering](#)

[AUTOEN-CTU: Undergraduate Certificate in Automation Engineering](#)

Requested Effective Date	Fall 2026
Department	Electrical & Computer Engr (RELECENG)
Discipline	Electrical Engineering (ELEC ENG)
Course Number	4380
Title	Practicum in Automation Engineering
Abbreviated Course Title	Practicum in Auto Engr
Co-Listed Course	

Catalog Description

### 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. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

### Approval Path

1. 02/24/26 10:08 am  
Jonathan Kimball (kimballjw):  
Approved for RELECENG Chair
2. 02/26/26 9:34 am  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/26/26 4:42 pm  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved

- for Pending CCC Agenda post
- 5. 03/23/26 8:22 am  
Hannah Johnson (hjh9x): Approved for CCC Meeting Agenda
- 6. 03/23/26 12:02 pm  
Cecil Eng Huang Chua (cchua): Approved for Campus Curricula Committee Chair

### History

- 1. Apr 28, 2014 by Kelvin Erickson (kte)

Students on an approved internship or cooperative education assignment with industry will complete a project designed by the advisor and employer. The project selected must be related to topics in one or more of the other courses in the Automation Engineering Minor program.

~~The same work period cannot receive credit for both Elec Eng 3002 and Elec Eng 4380.~~

Prerequisite(s):

Elec Eng 3340, ~~3340~~

Corequisite(s):

#### Credit Hours

Credit Hours

Credit Type	Credit Hours
Laboratory	3

Total: 3

Required for Majors No

Elective for Majors Yes

Communication Intensive	<u>No</u>
Communication Emphasized	<u>No</u>
Grading Basis	Graded
Repeatable	No

#### Justification

Deleted the sentence, "The same work period cannot receive credit for both Elec Eng 3002 and Elec Eng 4380." The sentence is not appropriate since the student needs to enroll in Elec Eng 3002 to show full-time status during the co-op work period.

#### Semesters Previously Offered

Term(s) Offered as  
experimental

Is this a MOTR  
Course?

Reviewer  
Comments

**Hannah Johnson (hjh9x) (02/26/26 9:29 am):** Put a period after the prerequisite. Marked no on CI and CE.

Key: 4032

[Preview Bridge](#)

# Course Change Request

## New Course Proposal

Date Submitted: 01/14/26 5:12 pm

Viewing: **STAT 5210 : Statistical Data Analysis**

### Using R

Last edit: 02/04/26 9:18 am

Changes proposed by: John Singler (singlerj)

Programs  
referencing this  
course

[PROPOSED: Data Science BS](#)

[PROPOSED: Data Science MS](#)

Requested Effective Date    Fall 2026

Department                    [Mathematics & Statistics \(RMATHEMA\)](#)

Discipline                    [Statistics \(STAT\)](#)

Course Number              [5210](#)

Title  
[Statistical Data Analysis Using R](#)

Abbreviated Course Title    [Data Analysis Using R](#)

Co-Listed Course

Catalog 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. CAT entry
11. Peoplesoft

### Approval Path

1. 04/04/22 2:04 pm  
John Singler (singlerj): Rollback to Initiator
2. 01/15/26 4:38 pm  
John Singler (singlerj): Approved for RMATHEMA Chair
3. 02/04/26 9:18 am  
Crystal Wilson (wilsoncry): Approved for CCC Secretary
4. 02/26/26 4:33 pm  
Katie Shannon (shannonk): Approved for

- Sciences DSCC Chair
- 5. 03/02/26 12:10 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post
- 6. 03/23/26 8:22 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda
- 7. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

This course will introduce the student to common data analytic tools implemented in the R programming language and their appropriate and effective use. The focus will be on the use of R for data analysis and a discussion of theoretical underpinnings of the methods implemented.

Prerequisite(s):

One of the following: Stat 3113, Stat 3115, Stat 3117 or Stat 5643; and one of the following: Stat 5346, Stat 5353, Stat 6841, Stat 6343, Stat 6344, or Stat 6545.

Corequisite(s):

**Credit Hours**

Credit Hours

Credit Type	Credit Hours
<u>Lecture</u>	<u>3</u>

Total: 3

Required for Majors No

Elective for Majors Yes

Communication No

Intensive

Communication No  
Emphasized

Grading Basis Graded

Repeatable No

#### Justification

This course is now a elective for the Masters in Applied Mathematics with Statistics Emphasis. It was offered as a 5001 course in Spring 2020 and Fall 2022. The course is an elective for the proposed BS and MS data science degrees program (DC forms will be submitted soon).

#### Semesters Previously Offered

---

Term(s) Offered as  
experimental

Previous Course  
Code

Is this a MOTR  
Course?

Reviewer  
Comments

**John Singler (singlerj) (04/04/22 2:04 pm):** Rollback: Hi Rob - Since this course will not be explicitly required for the MS with stat emphasis, we need to offer it one more time as an EC before it can become a permanent course.

**Crystal Wilson (wilsoncry) (02/04/26 9:18 am):** Marked No for CI and CE per department.

Key: 4840

[Preview Bridge](#)

# Course Change Request

## New Course Proposal

Date Submitted: 01/14/26 4:50 pm

Viewing: **STAT 5270 : Foundations of Statistical Learning**

Last edit: 02/04/26 9:18 am

Changes proposed by: John Singler (singlerj)

Programs  
referencing this  
course

[PROPOSED: Data Science BS](#)

[PROPOSED: Data Science MS](#)

Requested Effective Date    Fall 2026

Department                    [Mathematics & Statistics \(RMATHEMA\)](#)

Discipline                    [Statistics \(STAT\)](#)

Course Number                [5270](#)

Title  
[Foundations of Statistical Learning](#)

Abbreviated Course Title    [Statistical Learning](#)

Co-Listed Course

Catalog 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. CAT entry
11. Peoplesoft

### Approval Path

1. 08/23/23 10:53 pm  
Xiaoming Wang (xwx4z): Approved for RMATHEMA Chair
2. 08/28/23 10:05 am  
Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 01/15/26 4:38 pm  
John Singler (singlerj): Approved for RMATHEMA Chair
4. 02/04/26 9:18 am  
Crystal Wilson (wilsoncry): Approved for CCC

- Secretary
- 5. 02/26/26 4:34 pm  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC Chair
- 6. 03/02/26 12:10 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post
- 7. 03/23/26 8:22 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda
- 8. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

An introduction to the statistical foundations of data-analytic techniques commonly used in Data Mining and the analysis of Big Data, including spline and kernel methods, principal component analysis, dimension reduction, neural networks, tree-based methods, nearest neighbors methods, support vector machines, bagging and boosting.

Prerequisite(s):

Math 2222, Math 3108 and one of Stat 3113 or 3115 or 3117 or 5643

Corequisite(s):

**Credit Hours**

Credit Hours

Credit Type	Credit Hours
<u>Lecture</u>	<u>3</u>

Total: 3

---

Required for Majors	<u>No</u>
Elective for Majors	<u>Yes</u>
Communication Intensive	<u>No</u>
Communication Emphasized	<u>No</u>
Grading Basis	<u>Graded</u>
Repeatable	<u>No</u>

#### Justification

This course was previously successfully taught as a 6001 course. In Spring 2015 it had an enrollment of 7 and in Spring 2017 it had an enrollment of 9. The requisites for this course are all undergraduate prerequisites and so there is no really strong reason for it to have a 6000 level numbering. Furthermore, this is a key course for our undergraduate programs in data science and actuarial science so making it a 5001 level course makes it more accessible to these students. This was offered as a 5001 level course in Fall 2023. This course is an elective in both the proposed BS and MS data science degree programs (DC forms will be submitted soon).

#### Semesters Previously Offered

---

Term(s) Offered as  
experimental

Previous Course  
Code

Is this a MOTR  
Course?

Reviewer  
Comments

**Jennifer Pohlsander (jpnfd) (08/28/23 10:05 am):** Rollback: Course not taught within past 5 years. May be resubmitted as 5001 level EC.

**Crystal Wilson (wilsoncry) (02/04/26 9:18 am):** Marked No for CI and CE per department.

# Course Change Request

## New Course Proposal

Date Submitted: 01/14/26 5:10 pm

Viewing: **STAT 5364 : Causal Data Science**

Last edit: 02/04/26 9:21 am

Changes proposed by: John Singler (singlerj)

Programs  
referencing this  
course

[PROPOSED: Data Science BS](#)

[PROPOSED: Data Science MS](#)

Requested Effective Date      Fall 2026

Department                      [Mathematics & Statistics \(RMATHEMA\)](#)

Discipline                        [Statistics \(STAT\)](#)

Course Number                 [5364](#)

Title  
[Causal Data Science](#)

Abbreviated Course Title    [Causal Data Science](#)

Co-Listed Course

Catalog 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. CAT entry
11. Peoplesoft

### Approval Path

1. 08/27/23 12:52 pm  
Xiaoming Wang (xwx4z): Approved for RMATHEMA Chair
2. 08/28/23 9:32 am  
Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 01/15/26 4:39 pm  
John Singler (singlerj): Approved for RMATHEMA Chair
4. 02/04/26 9:21 am  
Crystal Wilson (wilsoncry): Approved for CCC

- Secretary
- 5. 02/26/26 4:34 pm  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC Chair
- 6. 03/02/26 12:10 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post
- 7. 03/23/26 8:22 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda
- 8. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

Potential outcomes, randomized experiments, observational studies, effect modification, interaction, causal directed acyclic graphs, Judea Pearl’s Theory of Causality, adjustment for confounding, selection bias, measurement bias, standardization, difference-in-differences, the front door method, instrumental variables, propensity-score methods and targeted learning.

Prerequisite(s):  
Stat 3113, Stat 3115, Stat 3117, or Stat 5643.

Corequisite(s):

<b>Credit Hours</b>	
Credit Hours	
Credit Type	Credit Hours
<u>Lecture</u>	<u>3</u>
Total:	<u>3</u>

Required for Majors No

Elective for Majors Yes

Communication No

Intensive

Communication No

Emphasized

Grading Basis Graded

Repeatable No

#### Justification

This course will be a required course for the proposed M.S. in Data Science. It will also be an elective for the proposed B.S. in Data Science. Both DC forms will be submitted soon. It was offered in SP 2024 and FS 2025 as a 5001 course

#### Semesters Previously Offered

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Term(s) Offered as  
experimental

Previous Course  
Code

Is this a MOTR  
Course?

Reviewer

Comments

**Jennifer Pohlsander (jpnfd) (08/28/23 9:32 am):** Rollback: Please resubmit it along with the B.S. in Data Science and the M.S. in Data Science or resubmit as an EC.

**Crystal Wilson (wilsoncry) (02/04/26 9:21 am):** Marked No for CI and CE per department.

Key: 4998

[Preview Bridge](#)

# Program Change Request

Date Submitted: 02/03/26 11:18 am

Viewing: **A&E BIO-MS : Biological Science MS**

Last approved: 12/05/24 4:08 pm

Last edit: 02/03/26 11:18 am

Changes proposed by: Melanie Mormile (mmormile)

Catalog Pages Using  
this Program

[Biological Sciences](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Master of Science
Academic Level	Graduate
Program Code	A&E BIO-MS
Department	Biological Sciences
Discipline	Biological Sciences
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

## Approval Path

1. 02/03/26 4:21 pm  
Gina Yosten  
(gyxmr): Approved for RBIOLSCI Chair
2. 02/04/26 3:28 pm  
Hannah Johnson  
(hjh9x): Approved for CCC Secretary
3. 02/26/26 4:28 pm  
Katie Shannon  
(shannonk):  
Approved for Sciences DSCC Chair
4. 03/02/26 12:08 pm  
Hannah Johnson  
(hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:21 am  
Hannah Johnson  
(hjh9x): Approved

for CCC Meeting

Agenda

6. 03/23/26 12:01 pm

Cecil Eng Huang

Chua (cchua):

Approved for

Campus Curricula

Committee Chair

## History

1. Apr 28, 2014 by  
Katie Shannon  
(shannonk)
2. Oct 15, 2014 by  
Katie Shannon  
(shannonk)
3. Jul 22, 2015 by  
pantaleoa
4. Feb 25, 2022 by  
Katie Shannon  
(shannonk)
5. Dec 5, 2024 by Katie  
Shannon  
(shannonk)

Biological Science MS

CIP Code                    26.0101 - Biology/Biological Sciences,  
General.

Program Requirements and Description

## **Degree Requirements M.S. - with thesis**

---

[BIO SCI 6202](#)            Problems In Applied And Environmental Biology

[BIO SCI 5010](#)            Graduate Seminar

or [BIO SCI 5020](#)        Data Analysis and Presentation

[BIO SCI 5099](#)            Graduate Research

[BIO SCI 6223](#)            Research Proposal Writing

## Degree Requirements M.S. - without thesis

---

[BIO SCI 6202](#) Problems In Applied And Environmental Biology

[BIO SCI 5010](#) Graduate Seminar

Elective courses are chosen with guidance from the advisor and advisory committee. A minimum of 30 credit hours is required for a M.S. degree. Up to 6 credit hours may be taken at the 3000-level in courses offered by other departments. Candidates for the M.S. degree with thesis conduct original research that is defended in a final oral examination.

~~Non-thesis M.S. degree candidates take a comprehensive written~~

~~final examination.~~ Degree Requirements M.S. with Emphasis in STEM

## Education without thesis

---

[BIO SCI 6100](#) Biology Citizen Science 3

[BIO SCI 6223](#) Research Proposal Writing 3

or [TCH COM 4550](#) Proposal Writing

or [TCH COM 5550](#) Advanced Proposal Writing

[EDUC 5150](#) Teacher Leadership within Educational System 3

[EDUC 5220](#) Instructional Coaching and Mentoring 3

[EDUC 5225](#) Curriculum Development and Assessment 3

[EDUC 5330](#) Community-Based Participatory Action Research 3

BIO SCI electives – any combination of additional elective graduate-level BIO SCI courses chosen with guidance from the advisor and advisory committee (12 hours)

Justification for  
request

The requirement for a comprehensive exam for our non-thesis students adds an unnecessary hurdle towards graduation for our students. We are aware that other programs, such as Chemistry, have eliminated this requirement for the same reason.

Attach Budget

System Approval  
Letter

MDHE Approval

Supporting [Program Change \(PC\) Form 032024 emphasis area STEM](#)

Documents

[education.docx](#)

[20240417-Provost Letter of Support.pdf](#)

[BIO SCI STEM Ed Ephasis Area DDD.pdf](#)

[MDHE Approval Letter\\_ST\\_November 2024bioed.pdf](#)

Reviewer

Comments

# Program Change Request

Date Submitted: 02/10/26 5:30 pm

## Viewing: **AI-MI : Minor in Artificial Intelligence and Machine Learning in Business**

Last approved: 12/03/25 1:41 pm

Last edit: 02/16/26 11:21 am

Changes proposed by: Cecil Eng Huang Chua (cecq8z)

Catalog Pages Using  
this Program

[Information Science and Technology](#)  
[Business and Management Systems](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Minor
Academic Level	Undergraduate
Program Code	AI-MI
Department	Jaggi School of Business
Discipline	Info Science & Technology
Title	

### In Workflow

1. **RBUS&IT 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

### Approval Path

1. 02/16/26 9:18 am  
Cassie Elrod (cassa):  
Approved for  
RBUS&IT Chair
2. 02/16/26 11:25 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Secretary
3. 02/16/26 11:32 am  
Cecil Eng Huang  
Chua (cchua):  
Approved for Social  
Sciences DSCC Chair
4. 03/02/26 12:08 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post
5. 03/23/26 8:21 am  
Hannah Johnson

(hjh9x): Approved  
for CCC Meeting  
Agenda

6. 03/23/26 12:01 pm

Cecil Eng Huang

Chua (cchua):

Approved for

Campus Curricula

Committee Chair

## History

1. Dec 11, 2017 by  
barryf
2. Mar 12, 2018 by  
ershenb
3. Apr 18, 2018 by  
ershenb
4. Apr 19, 2018 by  
ershenb
5. Apr 19, 2018 by  
ershenb
6. Feb 3, 2021 by Cecil  
Eng Huang Chua  
(cchua)
7. Jun 10, 2021 by  
Cecil Eng Huang  
Chua (cchua)
8. Jun 12, 2024 by  
Cecil Eng Huang  
Chua (cchua)
9. Dec 3, 2025 by  
Crystal Wilson  
(wilsoncry)

Minor in Artificial Intelligence and Machine Learning in Business

CIP Code

Program Requirements and Description

## Minor in Artificial Intelligence and Machine Learning in Business

---

The Minor requires 15 credit hours, as follows:

<a href="#"><u>BUS 5730</u></a>	Machine Learning and Artificial Intelligence for Business	3
<a href="#"><u>IS&amp;T 3420</u></a>	Introduction to Data Science and Management	3
<a href="#"><u>IS&amp;T 5520</u></a>	Data Science and Machine Learning with Python	3
And two courses from the following list:		6
<a href="#"><u>BUS 5920</u></a>	<a href="#"><u>Artificial Intelligence: Law, Governance, and Policy</u></a>	
<a href="#"><u>ERP 5410</u></a>	Use of Business Intelligence	
<a href="#"><u>IS&amp;T 3333</u></a>	Data Networks and Information Security	
<a href="#"><u>IS&amp;T 3343</u></a>	Systems Analysis	
<a href="#"><u>IS&amp;T 5420</u></a>	Business Analytics and Data Science	
<a href="#"><u>IS&amp;T 5450</u></a>	Introduction to Information Visualization	
<a href="#"><u>IS&amp;T 5535</u></a>	Machine Learning Algorithms and Applications	
<a href="#"><u>STAT 1115</u></a>	Statistics For The Social Sciences I	

Justification for  
request

BUS 5920 was taken out because there was no one to teach it. It has been added back in.

Attach Budget

System Approval  
Letter

MDHE Approval

Supporting  
Documents

Reviewer  
Comments

**Hannah Johnson (hjh9x) (02/16/26 11:21 am):** Alphabetized the course list in both sections.

# Program Change Request

Date Submitted: 02/23/26 3:11 pm

Viewing: **AUTOEN-CTU : Undergraduate**  
**Certificate in Automation Engineering**

Last approved: 02/03/21 10:50 am

Last edit: 02/26/26 11:43 am

Changes proposed by: Kelvin Erickson (kte)

Catalog Pages Using  
this Program  
[Electrical Engineering](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	<a href="#">Certificate</a>
Academic Level	<a href="#">Undergraduate</a>
Program Code	AUTOEN-CTU
Department	Electrical & Computer Engr
Discipline	Electrical Engineering
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. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar

## Approval Path

1. 02/24/26 10:07 am  
Jonathan Kimball (kimballjw):  
Approved for RELECENG Chair
2. 02/26/26 11:43 am  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/27/26 11:07 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:08 pm  
Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:21 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

6. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Jun 18, 2018 by  
Kelvin Erickson (kte)
2. Jul 26, 2018 by  
ershenb
3. Jul 26, 2018 by  
ershenb
4. Jul 26, 2018 by  
ershenb
5. Jun 12, 2019 by  
ershenb
6. Jul 1, 2020 by Kelvin  
Erickson (kte)
7. Feb 3, 2021 by  
Kelvin Erickson (kte)

Undergraduate Certificate in Automation Engineering

CIP Code

Intended Audience

[Distance \(online\) Students](#)

[Main Campus Students](#)

Program Requirements and Description

## Automation Engineering Certificate

An undergraduate certificate in Automation Engineering will require the following:

Required courses:		
<a href="#"><u>ELEC ENG 3340</u></a>	Basic Programmable Logic Controllers (must pass with a "C" or better)	3
Pass one of the following courses with a "C" or better:		
<a href="#"><u>ELEC ENG 3320</u></a>	Control Systems	3
<a href="#"><u>MECH ENG 4479</u></a>	Automatic Control Of Dynamic Systems	3
<a href="#"><u>CHEM ENG 4110</u></a>	Chemical Engineering Process Dynamics And Control	3
Pass 6 additional hours of coursework from the following list: (A "C" or better is required for all 6 hours)		
<del><a href="#"><u>CHEM ENG 4140</u></a></del>	<del>Chemical Process Safety</del>	<del>3</del>
<a href="#"><u>CHEM ENG 4241</u></a>	Process Safety in the Chemical and Biochemical Industries	3
<a href="#"><u>MECH ENG 5479</u></a>	<a href="#"><u>Machine Learning for Manufacturing Automation</u></a>	<u>3</u>
<a href="#"><u>ELEC ENG 5355</u></a>	<a href="#"><u>Process Control System Safety, Security and Alarms</u></a>	<u>3</u>
<a href="#"><u>CHEM ENG 4310</u></a>	Interdisciplinary Problems In Manufacturing Automation	3
or <a href="#"><u>MECH ENG 5644</u></a>	Interdisciplinary Problems In Manufacturing Automation	
<a href="#"><u>CHEM ENG 5190</u></a>	Plantwide Process Control	3
or <a href="#"><u>ELEC ENG 5350</u></a>	Plantwide Process Control	
<a href="#"><u>CHEM ENG 5355</u></a>	Process Control System Safety, Security and Alarms	3
or <a href="#"><u>ELEC ENG 5355</u></a>	Process Control System Safety, Security and Alarms	
<a href="#"><u>ELEC ENG 4380</u></a>	Practicum in Automation Engineering (no more than one can be applied to the Automation Engineering Minor)	3
<a href="#"><u>ELEC ENG 5340</u></a>	Advanced PLC	3
<a href="#"><u>ELEC ENG 5345</u></a>	PLC Motion Control	3
<a href="#"><u>ELEC ENG 5870</u></a>	Mechatronics	3
or <a href="#"><u>MECH ENG 5478</u></a>	Mechatronics	
<a href="#"><u>MECH ENG 5420</u></a>	Signal Processing for Instrumentation and Control	3
<a href="#"><u>MECH ENG 5449</u></a>	Robotic Manipulators and Mechanisms	3
<a href="#"><u>MECH ENG 5655</u></a>	Manufacturing Equipment Automation	3

Justification for  
request

Deleted Chem Eng 4140 since it is being removed from the catalog. Added Chem Eng/Elec Eng

5355. Added Mech Eng 5479

Attach Budget

System Approval  
Letter

MDHE Approval

Supporting [UG Certificate Automation Engr 2021.pdf](#)  
Documents

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/26/26 11:43 am):** Per Dr. Raper, these are minor changes.

# Program Change Request

Date Submitted: 02/23/26 3:07 pm

Viewing: **AUTOENG-MI : Minor in Automation Engineering**

Last approved: 03/11/24 1:37 pm

Last edit: 02/23/26 3:07 pm

Changes proposed by: Kelvin Erickson (kte)

Catalog Pages Using  
this Program  
[Electrical Engineering](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	<a href="#">Minor</a>
Academic Level	<a href="#">Undergraduate</a>
Program Code	AUTOENG-MI
Department	Electrical & Computer Engr
Discipline	Electrical Engineering
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. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar

## Approval Path

1. 02/24/26 10:07 am  
Jonathan Kimball (kimballjw):  
Approved for RELECENG Chair
2. 02/26/26 11:42 am  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/27/26 11:07 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:21 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

6. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Apr 28, 2014 by  
Kelvin Erickson (kte)
2. May 7, 2014 by  
Lahne Black (lahne)
3. Jul 20, 2015 by  
pantaleoa
4. Feb 27, 2018 by  
Kelvin Erickson (kte)
5. Apr 18, 2018 by  
ershenb
6. Jul 1, 2020 by Kelvin  
Erickson (kte)
7. Feb 3, 2021 by  
Kelvin Erickson (kte)
8. Mar 11, 2024 by  
Jennifer Pohlsander  
(jpnfd)

Minor in Automation Engineering

CIP Code

Program Requirements and Description

## Minor in Automation Engineering

A minor in automation engineering will require the following:

Pass [ELEC ENG 3340](#) Basic Programmable Logic Controllers with a "C" or better

Pass one of the following courses with a "C" or better:

[ELEC ENG 3320](#) Control Systems

[MECH ENG 4479](#) Automatic Control Of Dynamic Systems

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

Pass 9 additional hours of coursework from the following list. A "C" or better is required for all 9 hours.

~~[CHEM ENG 4140](#) ~~Chemical Process Safety~~~~ [CHEM ENG 4241](#) Process Safety in the Chemical and Biochemical Industries

[CHEM ENG 5190](#)/[ELEC ENG 5350](#) Plantwide Process Control

[CHEM ENG 5355](#)/[ELEC ENG 5355](#) Process Control System Safety, Security and Alarms

[CHEM ENG 4310](#)/[MECH ENG 5644](#) Interdisciplinary Problems In Manufacturing Automation

[ELEC ENG 4380](#) Practicum in Automation Engineering (no more than one can be applied to the Automation Engineering Minor)

[ELEC ENG 5340](#) Advanced PLC

[ELEC ENG 5345](#) PLC Motion Control

[ELEC ENG 5870](#)/[MECH ENG 5478](#) Mechatronics

[MECH ENG 5420](#) Signal Processing for Instrumentation and Control

[MECH ENG 5449](#) Robotic Manipulators and Mechanisms

[ELEC ENG 5355](#) Process Control System Safety, Security and Alarms

~~[MECH ENG 5655](#) ~~Manufacturing Equipment Automation~~~~

Justification for  
request

Deleted Chem Eng 4140 since it is being removed from catalog. Chem Eng/Elec Eng 5355 added. Mech Eng 5479 added

Attach Budget

System Approval  
Letter

MDHE Approval

Supporting  
Documents

Reviewer  
Comments

# Program Change Request

Date Submitted: 02/19/26 6:06 pm

Viewing: **CH ENG-BS : Chemical Engineering BS**

Last approved: 12/24/25 9:34 am

Last edit: 03/16/26 1:29 pm

Changes proposed by: Christi Luks (luksc)

Catalog Pages Using  
this Program

[Chemical & Biochemical Engineering](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Bachelor of Science
Academic Level	Undergraduate
Program Code	CH ENG-BS
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering
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

## Approval Path

1. 02/19/26 6:32 pm  
Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 02/20/26 3:51 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:15 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:10 pm  
Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:21 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

6. 03/23/26 12:01 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Mar 18, 2014 by  
Lahne Black (lahne)
2. May 2, 2014 by  
Lahne Black (lahne)
3. Jan 30, 2015 by  
kleb6b
4. Jul 15, 2015 by  
pantaleoa
5. Jul 15, 2015 by  
pantaleoa
6. Nov 18, 2015 by  
marlene
7. Mar 7, 2016 by  
Daniel Forciniti  
(forcinit)
8. Mar 27, 2017 by  
Daniel Forciniti  
(forcinit)
9. May 3, 2018 by  
Daniel Forciniti  
(forcinit)
10. May 7, 2018 by  
ershenb
11. May 7, 2018 by  
ershenb
12. May 7, 2018 by  
ershenb
13. Jul 3, 2018 by

ershenb

14. Nov 2, 2018 by Jee C. Wang (jcwang)
15. Jan 29, 2019 by Jee C. Wang (jcwang)
16. Jan 30, 2019 by ershenb
17. Jan 30, 2019 by ershenb
18. Mar 3, 2020 by ershenb
19. May 5, 2021 by Christi Luks (luksc)
20. Apr 6, 2022 by Christi Luks (luksc)
21. Oct 25, 2024 by Christi Luks (luksc)
22. Dec 13, 2024 by Crystal Wilson (wilsoncry)
23. Dec 13, 2024 by Jade McCain (jm558v)
24. Dec 13, 2024 by Jade McCain (jm558v)
25. Jul 1, 2025 by Christi Luks (luksc)
26. Dec 24, 2025 by Crystal Wilson (wilsoncry)

Chemical Engineering BS

CIP Code

Program Requirements and Description

# Bachelor of Science

## Chemical Engineering

The chemical engineering program at Missouri S&T is characterized by its focus on the scientific basics of engineering and its innovative application 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.

For the bachelor of science degree in chemical engineering a minimum of 128 credit hours is required. These requirements are 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. At least two grade points per credit hour must also be attained in all courses taken in chemical engineering.

Chemical engineering majors are encouraged to take the fundamentals of engineering exam prior to graduation. It is the first step toward becoming a registered professional engineer.

### Freshman Year

First Semester	Credits	Second Semester	Credits
<a href="#"><u>CHEM 1100</u></a>	1	<a href="#"><u>CHEM 1320</u></a>	3
<a href="#"><u>CHEM 1310</u></a>	4	<a href="#"><u>COMP SCI 1500</u></a>	3
<a href="#"><u>CHEM 1319</u></a>	1	OR	
<a href="#"><u>ENGLISH 1120</u></a>	3	<a href="#"><u>COMP SCI 1972</u></a>	
		& <a href="#"><u>COMP SCI 1982</u></a>	
<a href="#"><u>FR ENG 1100</u></a>	1	<a href="#"><u>MATH 1215</u></a>	4
<a href="#"><u>HISTORY 1200</u></a> , or <a href="#"><u>1300</u></a> , or <a href="#"><u>1310</u></a> , or <a href="#"><u>POL SCI 1200</u></a>	3	<a href="#"><u>MECH ENG 1720</u></a>	3
<a href="#"><u>MATH 1214</u></a> or <a href="#"><u>1211</u></a> <sup>6</sup>	4	<a href="#"><u>PHYSICS 1135</u></a>	4
	17		17

### Sophomore Year

First Semester	Credits	Second Semester	Credits
<a href="#"><u>CHEM ENG 2100</u></a> <sup>1</sup>	4	<a href="#"><u>CHEM ENG 2110</u></a> <sup>1</sup>	3
<a href="#"><u>CHEM 2210</u></a>	3	Gen.Ed. Elective <sup>2</sup>	3
<a href="#"><u>MATH 2222</u></a>	4	<a href="#"><u>MATH 3304</u></a>	3
<a href="#"><u>PHYSICS 2135</u></a>	4	Science Elective <sup>4</sup>	4
		<a href="#"><u>STAT 3113</u></a>	3
	15		16

### Junior Year

First Semester	Credits	Second Semester	Credits
<a href="#"><u>CHEM ENG 3101</u></a>	4	<a href="#"><u>CHEM ENG 3131</u></a>	3
<a href="#"><u>CHEM ENG 3111</u></a>	3	<a href="#"><u>CHEM ENG 3141</u></a>	3
<a href="#"><u>CHEM ENG 3120</u></a> <sup>1</sup>	3	<a href="#"><u>CHEM ENG 3150</u></a>	3

Gen.Ed. Elective <sup>2</sup>	3	<u>ENGLISH 3560</u> <sup>3</sup>	3
Gen.Ed. Elective <sup>2</sup>	3	<u>SP&amp;M S 1185</u> <sup>3</sup>	3
	16		15
Senior Year			
First Semester	Credits	Second Semester	Credits
<u>CHEM ENG 4091</u>	<u>3</u>	<u>CHEM ENG 4097</u>	<u>3</u>
<u>CHEM ENG 4101</u>	<u>3</u>	<u>CHEM ENG 4130</u>	<u>3</u>
<u>CHEM ENG 4110</u>	<u>3</u>	<u>CHEM ENG 4311</u>	<u>1</u>
<u>CHEM ENG 4241</u>	<u>3</u>	<u>CHEM ENG 5XXX-Chem Eng Elective</u> <sup>5</sup>	<u>3</u>
<u>CHEM ENG 4301</u>	<u>1</u>	<u>CHEM ENG 5XXX-Chem Eng Elective</u> <sup>5</sup>	<u>3</u>
<u>CHEM ENG 5XXX-Chem Eng Elective</u> <sup>5</sup>	<u>3</u>	<u>CHEM ENG 5XXX-Chem Eng Elective</u> <sup>5</sup>	<u>3</u>
	16		16

Senior Year <sup>3</sup>			
First Semester	Credits	Second Semester	Credits
<del>CHEM ENG 4091</del>	<del>3</del>	<del>CHEM ENG 4097</del>	<del>3</del>
<del>CHEM ENG 4101</del>	<del>3</del>	<del>CHEM ENG 4130</del>	<del>3</del>
<del>CHEM ENG 4110</del>	<del>3</del>	<del>CHEM ENG 4311</del>	<del>1</del>
<del>CHEM ENG 4241</del>	<del>3</del>	<del>CHEM ENG 5XXX-Chem Eng Elective</del> <sup>5</sup>	<del>3</del>
<del>CHEM ENG 5XXX-Chem Eng Elective</del> <sup>5</sup>	<del>3</del>	<del>CHEM ENG 5XXX-Chem Eng Elective</del> <sup>5</sup>	<del>3</del>
<del>CHEM ENG 4301</del>	<del>1</del>	<del>CHEM ENG 5XXX-Chem Eng Elective</del> <sup>5</sup>	<del>3</del>
	0		0

Total Credits: 128

**Note:** The minimum number of hours required for a degree in chemical engineering is 128.

A cumulative grade point average of 2.50 or better and a "C" or better in CHEM 1310, CHEM 1319, CHEM 1320, MATH 1214, MATH 1215 and PHYSICS 1135 are required to be admitted into the chemical engineering major. MATH 1210 and MATH 1211 may be substituted for MATH 1214.

1

A grade of "C" or better is required in CHEM ENG 2100 & CHEM ENG 2110 in order to enroll in CHEM ENG 3120.

2

Gen.Ed. electives must fulfill the Missouri S&T general education requirements applicable to the student's catalog year.

3

Gen.Ed. discipline-specific required course.

4

CHEM 2510, or CHEM 4610 and CHEM 4619, or BIO SCI 2213 and BIO SCI 2219 or CHEM 2220 and CHEM 2219, or BIO SCI 3313 and BIO SCI 3319, or CHEM 3420 and CHEM 2459.

5

A minimum of 12 cr. hr. from any Chem Eng 5xxx or BME 5xxx and any class from the approved list published on the Chemical Engineering web site but only 3 cr. hr. of CHEM ENG 4000, CHEM ENG 4099. Students may have no more than three hours from approved out-of-department electives.

6

MATH 1210 and MATH 1211 may be substituted for MATH 1214.

# Chemical Engineering

## Biochemical Engineering Emphasis

### Freshman Year

First Semester	Credits	Second Semester	Credits
<u>CHEM 1100</u>	1	<u>CHEM 1320</u>	3
<u>CHEM 1310</u>	4	<u>COMP SCI 1500</u>	3
<u>CHEM 1319</u>	1	OR	
<u>ENGLISH 1120</u>	3	<u>COMP SCI 1972</u>	
		& <u>COMP SCI 1982</u>	
<u>FR ENG 1100</u>	1	<u>MATH 1215</u> <sup>5</sup>	4
<u>HISTORY 1200</u> , or <u>1300</u> , or <u>1310</u> , or <u>POL SCI 1200</u>	3	<u>MECH ENG 1720</u>	3
<u>MATH 1214</u> or <u>1211</u> <sup>5</sup>	4	<u>PHYSICS 1135</u>	4
	17		17

### Sophomore Year

First Semester	Credits	Second Semester	Credits
<u>CHEM ENG 2100</u> <sup>1</sup>	4	<u>CHEM ENG 2110</u> <sup>1</sup>	3
<u>CHEM 2210</u>	3	Gen.Ed. Elective <sup>2</sup>	3
<u>MATH 2222</u>	4	<u>MATH 3304</u>	3
<u>PHYSICS 2135</u>	4	Science Elective <sup>4</sup>	4
		<u>STAT 3113</u> or <u>3425</u>	3-4
	15		16-17

### Junior Year

First Semester	Credits	Second Semester	Credits
<u>CHEM ENG 3101</u>	4	<u>CHEM ENG 3131</u>	3
<u>CHEM ENG 3111</u>	3	<u>CHEM ENG 3141</u>	3
<u>CHEM ENG 3120</u> <sup>1</sup>	3	<u>CHEM ENG 3150</u>	3
Science Elective <sup>4</sup>	4	<u>ENGLISH 3560</u> <sup>3</sup>	3
<u>SP&amp;M S 1185</u> <sup>3</sup>	3	<del><u>CHEM ENG 5250</u></del>	<del>3</del>
		<u>Science Elective</u> <sup>4</sup>	<u>4</u>
	17		16

### Senior Year<sup>3</sup>

First Semester	Credits	Second Semester	Credits
<u>CHEM ENG 4091</u>	3	<u>CHEM ENG 4097</u>	3
<u>CHEM ENG 4110</u>	3	<u>CHEM ENG 4210</u>	<u>3</u>
<u>CHEM ENG 4201</u>	3	<u>CHEM ENG 4220</u>	3
<del><u>CHEM ENG 4210</u></del>	<del>3</del>	<u>CHEM ENG 4241</u>	3

<u>CHEM ENG 4301</u>	1	<u>CHEM ENG 4311</u> or <u>BME 5311</u>	1
<u>CHEM ENG 5250</u>	<u>3</u>	<u>Science Elective</u> <sup>4</sup>	4
Gen.Ed. Elective <sup>2</sup>	3	Gen.Ed. Elective <sup>2</sup>	3
	16		16

Total Credits: 130-131

**Note:** The minimum number of hours required for a degree in chemical engineering with an emphasis in biochemical engineering is 130.

A cumulative grade point average of 2.50 or better and a "C" or better in CHEM 1310, CHEM 1319, CHEM 1320, MATH 1214, MATH 1215 and PHYSICS 1135 are required to be admitted into the chemical engineering major.

1

A grade of "C" or better is required in CHEM ENG 2100 & CHEM ENG 2110 in order to enroll in CHEM ENG 3120.

2

Gen. Ed. electives must fulfill the Missouri S&T general education requirements applicable to the student's catalog year.

3

Gen. Ed. discipline-specific required course

4

A minimum of 12 credit hours in Science Electives are required. Select three courses from CHEM 2220, CHEM 4610, CHEM 4620, BIO SCI 2213, BIO SCI 3313, and BIO SCI 4323; and a minimum of two laboratory courses from CHEM 2229 or CHEM 2219, CHEM 4619, BIO SCI 2219, BIO SCI 3319, and BIO SCI 4329.

5

MATH 1210 and MATH 1211 may be substituted for MATH 1214.

Justification for request

Provide options for Biochemical track that align with new prerequisites; Adjust timing of specialized biochem courses to current teaching schedule

Attach Budget

System Approval

Letter

MDHE Approval

Supporting

Documents

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/20/26 3:51 pm):** Alphabetized the plan of study grid.

**Hannah Johnson (hjh9x) (03/16/26 8:07 am):** Alphabetized Chemical Engineering Biochemical Engineering Emphasis plan of study grid.

**Hannah Johnson (hjh9x) (03/16/26 1:20 pm):** Took out footnote 3 on senior year in the first plan of study.

**Hannah Johnson (hjh9x) (03/16/26 1:29 pm):** When I edited the last time, I had to create a new Senior Year grid for both semesters in order to take out the footnote 3 from the Senior Year. We are not adding or taking away any courses. Took out footnote 2 from CHEM ENG 4097 in the Biochemical Engineering Emphasis.

# Program Change Request

Date Submitted: 02/23/26 5:28 pm

Viewing: **CHEM-BA : Chemistry BA**

Last approved: 12/24/25 9:34 am

Last edit: 03/16/26 10:46 am

Changes proposed by: Thomas Schuman (tschuman)

Catalog Pages Using  
this Program  
[Chemistry](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Bachelor of Arts
Academic Level	Undergraduate
Program Code	CHEM-BA
Department	Chemistry
Discipline	Chemistry
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

## Approval Path

1. 02/23/26 5:53 pm Chariklia Sotiriou-Leventis (cslevent): Approved for RCHEMIST Chair
2. 02/24/26 9:07 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/26/26 4:29 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 03/02/26 12:09 pm Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:23 am Hannah Johnson

(hjh9x): Approved  
for CCC Meeting  
Agenda

6. 03/23/26 12:02 pm

Cecil Eng Huang

Chua (cchua):

Approved for

Campus Curricula

Committee Chair

## History

1. Mar 18, 2014 by  
Lahne Black (lahne)
2. Jul 15, 2015 by  
pantaleoa
3. Jun 18, 2018 by  
Thomas Schuman  
(tschuman)
4. Dec 3, 2019 by  
Thomas Schuman  
(tschuman)
5. Mar 3, 2020 by  
Thomas Schuman  
(tschuman)
6. May 2, 2023 by  
Thomas Schuman  
(tschuman)
7. Apr 1, 2024 by  
Thomas Schuman  
(tschuman)
8. Jul 5, 2024 by  
Crystal Wilson  
(wilsoncry)
9. Dec 20, 2024 by  
Jade McCain  
(jm558v)
10. Jul 1, 2025 by  
Thomas Schuman  
(tschuman)
11. Aug 27, 2025 by

Crystal Wilson  
(wilsoncry)  
12. Aug 28, 2025 by  
Crystal Wilson  
(wilsoncry)  
13. Dec 24, 2025 by  
Crystal Wilson  
(wilsoncry)

Chemistry BA

CIP Code 40.0501 - Chemistry, General.

Program Requirements and Description

# Bachelor of Arts

## Chemistry

### Freshman Year

First Semester	Credits	Second Semester	Credits
<a href="#"><u>CHEM 1100</u></a>	1	<a href="#"><u>CHEM 1320</u></a>	3
<a href="#"><u>CHEM 1110</u></a>	1	<a href="#"><u>CHEM 1510</u></a>	2
<a href="#"><u>CHEM 1310</u></a>	4	<a href="#"><u>MATH 1215</u></a>	4
<a href="#"><u>CHEM 1319</u></a>	1	<a href="#"><u>HISTORY 1100</u></a>	3
<a href="#"><u>ENGLISH 1120</u></a>	3	Humanities Elective <sup>1</sup>	3
<a href="#"><u>MATH 1214</u></a> or <a href="#"><u>1210</u></a> <b>and</b> <a href="#"><u>1211</u></a>	4		
	14		15

### Sophomore Year

First Semester	Credits	Second Semester	Credits
Biological Science Elective	3	<a href="#"><u>CHEM 2220</u></a>	3
<a href="#"><u>CHEM 2210</u></a>	3	<a href="#"><u>CHEM 2229</u></a>	1
<a href="#"><u>CHEM 2219</u></a>	1	<a href="#"><u>ENGLISH 1160</u></a> or <a href="#"><u>3560</u></a>	3
Foreign Language Elective	4	Foreign Language Elective	4
<a href="#"><u>HISTORY 1200</u></a>	3	Minor Degree Elective	3
		Social Science Elective <sup>1</sup>	3
	14		17

### Junior Year

First Semester	Credits	Second Semester	Credits
<a href="#"><u>CHEM 2510</u></a>	4	<a href="#"><u>CHEM 2410</u></a>	3
Foreign Language Elective	4	Chemistry Elective	3

<a href="#">PHYSICS 1145</a> or <a href="#">1135</a>	4	Humanities Elective <sup>1</sup>	3
<a href="#">STAT 3113</a>	3	<a href="#">PHYSICS 2145</a> or <a href="#">2135</a>	4
		Social Science Elective <sup>1</sup>	3
	15		16

#### Senior Year

First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 3419</a>	1	Chemistry Elective	3
<a href="#">CHEM 4010</a> or <a href="#">4099</a>	1	Humanities Elective <sup>1</sup>	3
Chemistry Elective	3	Minor Degree Electives	6
Humanities Elective (Literature) <sup>13</sup>	3	Social Sciences Elective <sup>1</sup>	3
Minor Degree Elective	3		
Social Science Elective <sup>1</sup>	3		
	14		15

Total Credits: 120

1

Gen. Ed. Elective must fulfill the Missouri S&T general education requirements applicable to the students catalog year.

Students must complete a minimum of 120 credit hours for the Bachelor of Arts in Chemistry degree and comply with the campus B.A. requirements.

Elective credits must include an approved campus minor; see Undergraduate catalog for courses required for specific minors. All chemistry majors are encouraged to conduct research through [CHEM 4099](#). A total of 12 credits of a modern foreign language must also be taken as part of the electives above. Chemistry Electives must be selected from 3000 or higher-level courses. A grade of "C" or better is required for each Chemistry course counted towards the degree.

## Bachelor of Arts

### Chemistry

### Secondary Education Emphasis Area

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#### Freshman Year

First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 1100</a>	1	<a href="#">BIO SCI 1113</a>	3
<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="#">EDUC 1074</a>	3	<a href="#">EDUC 1104</a>	1
<a href="#">ENGLISH 1120</a>	3	<a href="#">MATH 1215</a>	4
<a href="#">MATH 1214</a> or <a href="#">1210</a> <i>and</i> <a href="#">1211</a>	4	<a href="#">PSYCH 1101</a>	3
	16		16

#### Sophomore Year

First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 2210</a>	3	<a href="#">CHEM 2220</a>	3

<u>CHEM 2219</u>	1	<u>ECON 1100</u> , or <u>1200</u> , or <u>POL SCI 1200</u>	3
<u>EDUC 2102</u> or <u>PSYCH 2300</u>	3	<u>EDUC 3216</u>	3
<u>ENGLISH 1160</u> or <u>3560</u>	3	<u>ENGLISH 1221</u> or <u>1222</u>	3
<u>PHYSICS 1145</u> or <u>1135</u>	4	<u>HISTORY 1100</u>	3
	14		15
Junior Year			
First Semester	Credits	Second Semester	Credits
<u>BIO SCI 2263</u>	3	<u>ART 1180</u> , or <u>MUSIC 1150</u> , or <u>THEATRE 1190</u>	3
<u>CHEM 2510</u>	4	<u>CHEM 2410</u>	3
<u>CHEM 4010</u> or <u>4099</u>	1	<u>EDUC 3298</u>	1
<u>EDUC 1164</u>	2	<u>HISTORY 1200</u>	3
<u>EDUC 3170</u>	3	<u>HISTORY 3530</u> , or <u>PHILOS 4345</u> , or <u>HISTORY 3534</u>	3
<u>PHYSICS 1505</u> or <u>GEOLOGY 1110</u>	3	<u>PSYCH 4310</u> or <u>EDUC 2310</u>	3
	16		16
Senior Year			
First Semester	Credits	Second Semester	Credits
<u>CHEM 4610</u>	3	<u>EDUC 4298</u>	1
<del><u>CHEM 3419</u></del>	<del>1</del>	<u>EDUC 4299</u>	12
<u>EDUC 3280</u>	3		
<u>EDUC 3340</u>	3		
<u>PHILOS 1105</u>	3		
<u>PSYCH 3310</u>	3		
	15		13

Total Credits: 121

Students must complete a minimum of ~~121~~ 122 credit hours for the Bachelor of Arts in Chemistry degree with a Secondary Education Emphasis Area. The degree program is intended to culminate in a Certification Recommendation for an initial Missouri teaching certification. To be eligible for student teaching and certification, students must have a 2.5 content GPA and a 3.0 education GPA. Students should also consult the Education department for Teacher Certification requirements. This program is approved by the Missouri Department of Elementary and Secondary Education. License reciprocity determinations outside of Missouri can be found at <https://teaching.missouri.edu/student/state-authorization/mst/licensure>.

For this Bachelor of Arts degree program, the minor degree and foreign language requirements of the typical program of study are waived and there are other course substitutions in lieu of education coursework and requirements. A total of nine humanities credit hours are required to be selected from ENGLISH 1221 or ENGLISH 1222 ; PHILOS 1105 ; and one of ART 1180 , MUSIC 1150 , or THEATRE 1190 . All chemistry majors are encouraged to conduct research through CHEM 4099. A grade of "C" or better is required for each Chemistry course counted towards the degree.

Justification for  
request

Secondary education emphasis area students do not have and will not earn the prerequisite course credit to enroll in the physical chemistry lab. This change will also bring them closer to the desired credit-to-degree of 120 hours (121 proposed).

Attach Budget

System Approval

Letter

MDHE Approval

Supporting [Bachelor of Arts Chemistry sp2025 redline.docx](#)  
Documents

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/24/26 8:54 am):** I alphabetized the plan of study grid and the emphasis area section.

**Hannah Johnson (hjh9x) (03/16/26 10:46 am):** Edited hours from 122 to 121 in the paragraph after the plan of study for Secondary Education Emphasis Area.

# Program Change Request

Date Submitted: 02/13/26 9:31 pm

Viewing: **CP ENG-BS : Computer Engineering BS**

Last approved: 12/24/25 9:34 am

Last edit: 02/18/26 11:01 am

Changes proposed by: R.Joe Stanley (stanleyj)

Catalog Pages Using  
this Program  
[Computer Engineering](#)

Final Catalog Edition: FS2026-SP2027  
Rationale for Supporting

Effective Catalog Edition: FS2026-SP2027  
Start Term: Fall 2026  
Program Type: Bachelor of Science  
CIM Prospectus: Undergraduate  
Academic Level: Undergraduate  
Program Code: CP ENG-BS  
Department: Electrical & Computer Engr  
Discipline: Computer Engineering  
Offered by:  
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. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar

## Approval Path

1. 02/15/26 3:08 pm  
Jonathan Kimball (kimballjw):  
Approved for RELECENG Chair
2. 02/18/26 11:05 am  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:15 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:23 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

6. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Aug 6, 2014 by  
R.Joe Stanley  
(stanleyj)
2. Aug 13, 2014 by  
pantaleoa
3. Sep 21, 2015 by  
kleb6b
4. Apr 25, 2016 by  
R.Joe Stanley  
(stanleyj)
5. Dec 1, 2016 by  
R.Joe Stanley  
(stanleyj)
6. Sep 19, 2017 by  
R.Joe Stanley  
(stanleyj)
7. Jun 18, 2018 by  
R.Joe Stanley  
(stanleyj)
8. Nov 2, 2018 by  
R.Joe Stanley  
(stanleyj)
9. May 2, 2019 by  
R.Joe Stanley  
(stanleyj)
10. May 14, 2019 by  
ershenb
11. Mar 3, 2020 by

R.Joe Stanley  
(stanleyj)

12. May 2, 2022 by  
R.Joe Stanley  
(stanleyj)

13. Sep 26, 2022 by  
R.Joe Stanley  
(stanleyj)

14. Jun 7, 2023 by R.Joe  
Stanley (stanleyj)

15. Jan 29, 2024 by  
R.Joe Stanley  
(stanleyj)

16. Apr 30, 2024 by  
R.Joe Stanley  
(stanleyj)

17. Jul 1, 2025 by R.Joe  
Stanley (stanleyj)

18. Jul 2, 2025 by Jade  
McCain (jm558v)

19. Jul 2, 2025 by Jade  
McCain (jm558v)

20. Jul 7, 2025 by Jade  
McCain (jm558v)

21. Aug 27, 2025 by  
Crystal Wilson  
(wilsoncry)

22. Dec 24, 2025 by  
R.Joe Stanley  
(stanleyj)

Computer Engineering BS

CIP Code

Purpose

Intended Audience

Program-Specific

Admission

# Bachelor of Science Computer Engineering<sup>1</sup>

For the Bachelor of Science degree in Computer Engineering, a minimum of 128 credit hours is required. These requirements are 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. At least two grade points per credit hour must also be attained in all courses taken in Computer Engineering.

The Computer 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. These interrelations are presented and discussed through classroom and laboratory instruction.

## Free Electives Footnote:

Each student is required to take three hours of free electives in consultation with his/her academic advisor. Credits which do not count towards this requirement are deficiency courses (such as algebra and trigonometry), and extra credits in required courses. Any courses outside of engineering and science must be at least three credit hours.

### Freshman Year

First Semester	Credits	Second Semester	Credits
<a href="#"><u>CHEM 1305</u></a>	<u>4</u>	<a href="#"><u>COMP SCI 1500</u></a>	3
<a href="#"><u>CHEM 1319</u></a>	1	Gen Ed Elective <sup>5</sup>	6
<a href="#"><u>ENGLISH 1120</u></a>	3	<a href="#"><u>MATH 1215</u></a> <sup>3</sup>	4
<a href="#"><u>FR ENG 1100</u></a> <sup>2</sup>	1	<a href="#"><u>PHYSICS 1135</u></a> <sup>3,4</sup>	4
<a href="#"><u>HISTORY 1200</u></a> , or <a href="#"><u>1300</u></a> , or <a href="#"><u>1310</u></a> , or <a href="#"><u>POL SCI 1200</u></a>	3		
<a href="#"><u>MATH 1214</u></a> or <a href="#"><u>1211</u></a> <sup>3,18</sup>	4		
<del><a href="#"><u>CHEM 1310</u></a></del>	<del>4</del>		
	16		17

### Sophomore Year

First Semester	Credits	Second Semester	Credits
<a href="#"><u>COMP SCI 1570</u></a> <sup>3</sup>	3	<a href="#"><u>COMP ENG 2010</u></a> or <a href="#"><u>ELEC ENG 2010</u></a>	1
<a href="#"><u>COMP SCI 1580</u></a> <sup>3</sup>	1	<a href="#"><u>COMP ENG 2210</u></a> <sup>3,6</sup>	3

<a href="#">ELEC ENG 2100</a> <sup>3,6</sup>	3	<a href="#">COMP ENG 2211</a> <sup>3,6</sup>	1
<a href="#">ELEC ENG 2101</a> <sup>3,6</sup>	1	<a href="#">COMP SCI 1200</a> <sup>3</sup>	3
<a href="#">MATH 3304</a> <sup>3</sup>	3	<a href="#">COMP SCI 1575</a> <sup>3</sup>	3
<a href="#">PHYSICS 2135</a> <sup>3,4</sup>	4	<a href="#">ELEC ENG 2120</a> <sup>3,6</sup>	3
		<a href="#">MATH 2222</a> <sup>3</sup>	4
	15		18
Junior Year			
First Semester	Credits	Second Semester	Credits
<a href="#">COMP ENG 3110</a> <sup>3</sup>	3	COMP ENG Elective A <sup>3,11</sup>	3
<a href="#">ELEC ENG 2200</a> <sup>3,6</sup>	3	<a href="#">COMP ENG 3150</a> <sup>3</sup>	3
<a href="#">ELEC ENG 2201</a> <sup>3,6</sup>	1	<a href="#">COMP SCI 3800</a> or <a href="#">2500</a> <sup>3</sup>	3
Mathematics Elective <sup>7</sup>	3	<a href="#">ELEC ENG 3410</a> <sup>3,6</sup>	3
<a href="#">SP&amp;M S 1185</a> <sup>10</sup>	3	<a href="#">ENGLISH 3560</a> or <a href="#">1160</a>	3
<a href="#">STAT 3117</a> <sup>9</sup>	3		
	16		15
Senior Year			
First Semester	Credits	Second Semester	Credits
COMP ENG Elective B <sup>3,11</sup>	3	COMP ENG Elective D <sup>3,12,13</sup>	3
COMP ENG Elective C <sup>3,14</sup>	3	COMP ENG Elective E <sup>3,12,13</sup>	3
<a href="#">COMP ENG 4096</a> <sup>3,15</sup>	1	<a href="#">COMP ENG 4097</a> <sup>15</sup>	3
<a href="#">COMP ENG 5410</a> <sup>3, 11, 14</sup>	3	Free Elective <sup>16</sup>	3
Engineering Science Elective <sup>8</sup>	3	Professional Development Elective <sup>17</sup>	3
Gen Ed Elective <sup>5</sup>	3		
	16		15
Total Credits: 128			

1  
The minimum number of hours required for a degree in Computer Engineering is 128.

2  
Students that transfer to Missouri S&T after their freshman year are not required to enroll in Foundational Engineering and Computing Seminars.

3  
A minimum grade of "C" must be attained in [MATH 1214](#) or [MATH 1211](#), [MATH 1215](#), [MATH 2222](#), and [MATH 3304](#), [PHYSICS 1135](#) and [PHYSICS 2135](#) (or their equivalents), [COMP SCI 1570](#), [COMP SCI 1575](#), [COMP SCI 1580](#), [COMP SCI 1200](#), [COMP SCI 2500](#) or [COMP SCI 3800](#), [COMP ENG 2210](#), [COMP ENG 2211](#), [COMP ENG 3110](#), [COMP ENG 3150](#), [COMP ENG 4096](#), [COMP ENG 5410](#), and [ELEC ENG 2100](#), [ELEC ENG 2101](#), [ELEC ENG 2120](#), [ELEC ENG 2200](#), [ELEC ENG 2201](#), and [ELEC ENG 3410](#) and the COMP ENG electives A, B, C, D and E. Also, students may not enroll in other courses that use these courses as prerequisites until the minimum grade of "C" is attained.

4  
Students may take [PHYSICS 1111](#) and [PHYSICS 1119](#) in place of [PHYSICS 1135](#). Students may take [PHYSICS 2111](#) and [PHYSICS 2119](#) in place of [PHYSICS 2135](#).

5

All electives must be approved by the student's advisor. Gen. Ed. electives must fulfill the Missouri S&T general education requirements applicable to the student's catalog year. These requirements are specified in the current catalog.

6

Students who drop a lecture course prior to the deadline to drop a class must also drop the corequisite lab course.

7

Students must take one of the following courses:

[MATH 3108](#), [MATH 3109](#), [MATH 5302](#), [MATH 5603](#), [MATH 5105](#), [MATH 5106](#), [MATH 5107](#), [MATH 5108](#), [MATH 4209](#), [MATH 4211](#), [MATH 5215](#), [MATH 5222](#), [MATH 5325](#), [MATH 4530](#), [MATH 5737](#), [MATH 5351](#), [MATH 5154](#), [MATH 4096](#), [MATH 5483](#), [MATH 5585](#), [STAT 5644](#), [STAT 5346](#), [STAT 5353](#).

8

Students must take one of [MECH ENG 2340](#), [MECH ENG 2519](#), [MECH ENG 2527](#), [PHYSICS 2311](#), [PHYSICS 2401](#), [CHEM 2210](#), [BIO SCI 2213](#), [BIO SCI 2223](#), [PHYSICS 2305](#), [PHYSICS 4311](#), [CER ENG 4240](#), [NUC ENG 3205](#), or [NUC ENG 3103](#). The following pair of courses can be substituted: [CIV ENG 2200](#) and [MECH ENG 2350](#).

9

Students may replace [STAT 3117](#) with [STAT 5643](#).

10

Students may replace [SP&M S 1185](#) with the ROTC sequence of [MIL ARMY 4250](#) and [MIL ARMY 4500](#) or [MIL AIR 4110](#) and [MIL AIR 4120](#).

11

Comp Eng Senior Electives A and B, respectively, must be selected from 4xxx or 5xxx courses in Comp Eng, except [COMP ENG 4000](#), [COMP ENG 4099](#), [COMP ENG 4096](#), [COMP ENG 4097](#), [COMP ENG 5000](#), and [COMP ENG 5099](#).

The two courses selected for electives A and B, respectively, should be from two different Comp Eng emphasis areas. The emphasis areas, with course number options, are as follows:

Electronic Computer System Design: Elec Eng 36xx, Elec Eng 56xx, Comp Eng 51xx

Computational Intelligence: Comp Eng 53xx

Computer Chips and Semiconductor Engineering: [ELEC ENG 3250](#), [ELEC ENG 3100](#), Comp Eng 32xx/42xx/52xx, Comp Eng 51xx

Networks and Cyber Physical Systems: Comp Eng 44xx, Comp Eng 54xx, [ELEC ENG 5160](#), Elec Eng 53xx, except [COMP ENG 5410](#).

12

Comp Eng Senior Electives D and E must be selected from an approved list that contains most 3xxx, 4xxx and 5xxx courses in science, mathematics, and engineering except required courses in Comp Eng, Elec Eng, and Comp Sci and except [COMP SCI 3610](#) and [COMP SCI 5600](#).

13

COMP ENG Electives D and E cannot include more than three hours of [COMP ENG 3002/ELEC ENG 3002](#), [COMP ENG 4000/COMP ENG 4099](#), [ELEC ENG 4000/ ELEC ENG 4099](#), [COMP SCI 4000/COMP SCI 4099](#).

14

Comp Eng Senior Elective C must be selected from 3xxx, 4xxx or 5xxx courses in Comp Eng, Elec Eng, or Comp Sci,

except [COMP ENG 3000](#)/[COMP ENG 4000](#)/[COMP ENG 4096](#)/[COMP ENG 4097](#)/[COMP ENG 4099](#)/[COMP ENG 5000](#)/[COMP ENG 5099](#), [ELEC ENG 3000](#)/[ELEC ENG 4000](#)/[ELEC ENG 4096](#)/[ELEC ENG 4097](#)/[ELEC ENG 4099](#)/[ELEC ENG 5000](#)/[ELEC ENG 5099](#), [COMP SCI 3000](#)/[COMP SCI 4000](#)/[COMP SCI 4096](#)/[COMP SCI 4097](#)/[COMP SCI 4099](#)/[COMP SCI 5000](#), and [COMP SCI 5099](#) and [COMP SCI 4010](#), [COMP SCI 3610](#) . and [COMP SCI 5600](#). The emphasis area with course number options, are as follows:

Networking, Security, and Reliability: 44xx/54xx, except [COMP ENG 5410](#).

15

Students pursuing dual degrees in COMP ENG and ELEC ENG may take either [COMP ENG 4096](#) or [ELEC ENG 4096](#) and [COMP ENG 4097](#) or [ELEC ENG 4097](#). Students may not receive credit for both [COMP ENG 4096](#) and [ELEC ENG 4096](#) or [COMP ENG 4097](#) and [ELEC ENG 4097](#) in the same degree program.

16

Students are required to take at least three credit hours. [ELEC ENG 2800](#) level, [ELEC ENG 4096](#), [ELEC ENG 4097](#), [COMP ENG 4096](#) and [COMP ENG 4097](#) may not be used for free electives. No more than one credit hour of [COMP ENG 3002](#) or [ELEC ENG 3002](#) may be applied to the BS degree for free electives.

17

Students must take one of the following courses: [BUS 5980](#), [ECON 4430](#), [ECON 5337](#), [ENG MGT 2310](#), [ENG MGT 3320](#), [ENG MGT 4110](#), [ENG MGT 5514](#), [PHILOS 3225](#).

18

The course combination [MATH 1210](#) and [MATH 1211](#) may be taken in place of [MATH 1214](#).

## Emphasis Areas for Computer Engineering

A declared emphasis area is not required. A student may choose to obtain a Computer Engineering degree without a formal emphasis or may choose to obtain a Computer Engineering degree with a declared emphasis in one or more of the emphasis areas of computer engineering. A major change request is required to add the emphasis area option to the degree program.

Emphasis areas that may be declared, include: **Integrated Circuits and Logic Design, Computer Architecture and Embedded Systems, and Networking, Security, and Dependability**. Note that **Computational Intelligence** is also a Computer Engineering emphasis area but is focused in the graduate program.

For students who seek a Computer Engineering degree without a formal emphasis, these emphasis areas may guide the choice of their COMP ENG Electives A, B, C, D, and E as well as their free electives. Students should consult with their advisors on such course selections.

For students who seek a Computer Engineering degree with a declared emphasis, courses in the declared emphasis area will be applied to COMP ENG Electives A, C, and D in the degree requirements. For students who choose to have multiple emphasis areas, the additional courses will apply to COMP ENG Electives B and E and free elective requirements. Students should seek guidance from their advisors on emphasis areas and on courses that are relevant to more than one emphasis area. Students may have an emphasis area or emphasis areas listed on their transcript by completing **three three-credit-hour courses** in computer engineering from the designated lists. For a single emphasis area, this requirement will be satisfied by completing the relevant 4XXX-level or above course for Elective A and 3XXX-level or above courses for Electives C and D from the designated emphasis area course list. For a second emphasis area, this requirement will be satisfied by

completing the relevant 4XXX-level or above course for Elective B, a 3XXX-level or above course for Electives E, and a 3XXX-level or above course for the free elective from the designated second emphasis area course list. Courses not on the emphasis area list, including experimental courses (5001) require departmental approval to apply toward the designated emphasis area.

Computer Engineering Course List Designations:

<b>Electronic Computer System Design</b>	<b>9</b>
Elec Eng 36xx, Elec Eng 56xx, Comp Eng 51xx	
<b>Computational Intelligence</b>	<b>9</b>
COMP ENG 53XX Courses	
<b>Computer Chips and Semiconductor Engineering</b>	<b>9</b>
Elec Eng 3250, Elec Eng 3100, Comp Eng 32xx/42xx/52xx, Comp Eng 51xx	
<b>Networks and Cyber Physical Systems</b>	<b>9</b>
Comp Eng 44xx, Comp Eng 54xx, Elec Eng 5160, Elec Eng 53xx, except COMP ENG 5410	

Justification for request

The emphasis areas and associated course options in footnote 11 are correct.

In the section Emphasis Areas for Computer Engineering, the old emphasis areas and course options were still listed and have been updated.

Chem 1305 replaces Chem 1310 due to Chem 1310 no longer being an option for non-Chemistry majors.

The course options for the Engineering Science Elective (footnote 8) has been updated to provide consistency between the Electrical and Computer Engineering programs and to reflect course offering changes.

Updated Engineering Science Elective courses options (footnote 8): Students must take one of MECH ENG 2340, MECH ENG 2519, MECH ENG 2527, PHYSICS 2311, PHYSICS 2401, CHEM 2210, BIO SCI 2213, BIO SCI 2223, PHYSICS 2305, PHYSICS 4311, CER ENG 4240, NUC ENG 3205, or NUC ENG 3103. The following pair of courses can be substituted: CIV ENG 2200 and MECH ENG 2350.

The CHEM 1305 and Engineering Science Elective changes were approved by the ECE faculty on February 12, 2026.

Attach Budget

System Approval Letter [MDHE Receipt S&T Comp Eng Rename Options NOV2025.pdf](#)  
MDHE Approval [MDHE Approval Letter S&T December 2025.pdf](#)  
Supporting Documents [highered-ProgramChangeForm-CpE BS Degree Program.docx](#)  
[Cover Letter - MDHE - CpE BS Program Change of Emphasis Areas.doc](#)

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/16/26 11:39 am):** Alphabetized Plan of Study Grid in all semester sections.

**Hannah Johnson (hjh9x) (02/17/26 1:27 pm):** I hyperlinked courses that were not hyperlinked in the footnotes.

**Hannah Johnson (hjh9x) (02/17/26 2:47 pm):** Attaching supporting documents.

**Hannah Johnson (hjh9x) (02/18/26 11:01 am):** Changed course ELEC ENG 5230, which was not a course, to course ELEC ENG 3250 per email approval from Dr. Raper and Dr. Stanley. This was corrected in both the footnote 11 and in the emphasis area section.

# Program Change Request

Date Submitted: 10/02/25 12:21 pm

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

Last approved: 08/27/25 11:52 am

Last edit: 02/16/26 10:34 am

Changes proposed by: Crystal Wilson (wilsoncry)

Catalog Pages Using  
this Program  
[Education](#)

## 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. CAT entry

## Approval Path

1. 10/09/25 9:11 am  
Beth Kania-Gosche  
(bakm75):  
Approved for  
REDUCATION Chair
2. 10/09/25 10:15 am  
Jade McCain  
(jm558v): Approved  
for CCC Secretary
3. 10/09/25 11:02 am  
Cecil Eng Huang  
Chua (cchua):  
Approved for Social  
Sciences DSCC Chair
4. 10/20/25 2:29 pm  
Crystal Wilson  
(wilsoncry):  
Rollback to  
REDUCATION Chair

- for Pending CCC  
Agenda post
5. 10/20/25 3:47 pm  
Beth Kania-Gosche  
(bakm75):  
Approved for  
REDUCATION Chair
  6. 10/27/25 8:58 am  
Jade McCain  
(jm558v): Approved  
for CCC Secretary
  7. 11/05/25 1:11 pm  
Crystal Wilson  
(wilsoncry):  
Rollback to  
REDUCATION Chair  
for Social Sciences  
DSCC Chair
  8. 11/14/25 12:34 pm  
Beth Kania-Gosche  
(bakm75):  
Approved for  
REDUCATION Chair
  9. 11/19/25 8:12 am  
Crystal Wilson  
(wilsoncry):  
Rollback to  
REDUCATION Chair  
for CCC Secretary
  10. 12/03/25 10:24 am  
Beth Kania-Gosche  
(bakm75):  
Approved for  
REDUCATION Chair
  11. 12/18/25 9:29 am  
Crystal Wilson  
(wilsoncry):  
Rollback to  
REDUCATION Chair  
for CCC Secretary
  12. 01/10/26 10:00 am

Rationale for  
Inactivation

- Beth Kania-Gosche  
(bakm75):  
Approved for  
REDUCATION Chair
13. 02/11/26 12:26 pm  
Crystal Wilson  
(wilsoncry):  
Rollback to  
REDUCATION Chair  
for CCC Secretary
14. 02/13/26 11:39 am  
Beth Kania-Gosche  
(bakm75):  
Approved for  
REDUCATION Chair
15. 02/13/26 1:36 pm  
Crystal Wilson  
(wilsoncry):  
Approved for CCC  
Secretary
16. 02/13/26 2:48 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for Social  
Sciences DSCC Chair
17. 03/02/26 12:10 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post
18. 03/23/26 8:23 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda
19. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

Supporting  
Documents

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Bachelor of Science

## History

1. Jun 10, 2021 by Beth Kania-Gosche (bakm75)
2. Aug 3, 2021 by Crystal Wilson (wilsoncry)
3. Apr 7, 2022 by Beth Kania-Gosche (bakm75)
4. Jun 14, 2022 by Beth Kania-Gosche (bakm75)
5. Jun 24, 2022 by Crystal Wilson (wilsoncry)
6. Jun 24, 2022 by Crystal Wilson (wilsoncry)
7. May 19, 2023 by Jennifer Pohlsander (jpnfd)
8. May 19, 2023 by Jennifer Pohlsander (jpnfd)
9. May 19, 2023 by Jennifer Pohlsander (jpnfd)
10. Oct 31, 2024 by Beth Kania-Gosche (bakm75)
11. Feb 4, 2025 by Beth Kania-Gosche (bakm75)
12. Jul 1, 2025 by Beth Kania-Gosche (bakm75)
13. Jul 21, 2025 by Crystal Wilson

CIM Prospectus

Academic Level Undergraduate

Program Code EDUC-BS

Department Education

Discipline Education

Offered by

Title

Education BS

CIP Code

(wilsoncry)

14. Aug 27, 2025 by

Crystal Wilson

(wilsoncry)

Purpose

Intended Audience

Program-Specific

Admission

Program Requirements and Description

## Bachelor of Science in Education

### Overview

The Department of Education 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.

Students must complete a minimum of 120 hours for a Bachelor of Science in Education.

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 certification programs is student teaching when students are immersed full time in a school setting for 16 weeks, except for the educational studies emphasis area.

The Missouri Department of Elementary and Secondary Education approves the curricula of certification programs. Any substitutions for content or education coursework must be approved by the Department of Education. Students intended to earn a teaching certificate must also pass the appropriate Praxis exam and meet the GPA requirements to be eligible for student 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 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 1104</a>	Teacher Field Experience I	1
<a href="#">EDUC 1074</a>	Foundations of Education in a Diverse Society	3
<a href="#">EDUC 1164</a>	Teacher Field Experience II	2

<a href="#"><u>EDUC 2102</u></a>	Educational Psychology	3
or <a href="#"><u>PSYCH 2300</u></a>	Educational Psychology	
<a href="#"><u>EDUC 2310</u></a>	Education Of The Exceptional Child	3
or <a href="#"><u>PSYCH 4310</u></a>	Psychology Of The Exceptional Child	
<a href="#"><u>EDUC 3216</u></a>	Instructional Literacy in the Content Area	3
<a href="#"><u>EDUC 3340</u></a>	Assessment of Student Learning	3
<a href="#"><u>PSYCH 3310</u></a>	Developmental Psychology	3
<a href="#"><u>EDUC 4298</u></a>	Student Teaching Seminar	1
<a href="#"><u>EDUC 4299</u></a>	Student Teaching	12
Total Credits		34

**Students must complete the General Education Requirements as stated in the catalog, as applicable to the student's catalog year.**

<a href="#"><u>ENGLISH 1120</u></a>	Exposition And Argumentation	3
<a href="#"><u>ENGLISH 1160</u></a>	Writing And Research	3
or <a href="#"><u>SP&amp;M S 1185</u></a>	Principles Of Speech	
Math General Education Course		3
Natural Science Courses in Two Disciplines including a minimum 1 credit hour lab		7
Humanities, Arts, and Social Science Courses		12
<a href="#"><u>HISTORY 1200</u></a>	Modern Western Civilization	3
or <a href="#"><u>POL SCI 1200</u></a>	American Government	
Total Credits		31

## 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 (34 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.

## Emphasis Area: Early Childhood

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

<a href="#"><u>EDUC 1055</u></a>	Introduction to Early Childhood Education	3
<a href="#"><u>EDUC 1221</u></a>	Health, Nutrition, and Safety in Early Childhood Education	3
<a href="#"><u>EDUC 1820</u></a>	Early Childhood Program Management	3
<a href="#"><u>EDUC 2401</u></a>	School, Family, and Community Partnerships	3
<a href="#"><u>EDUC 2440</u></a>	Observation and Assessment of Young Children	3
<a href="#"><u>EDUC 3203</u></a>	Introduction to STEM Education	3
<a href="#"><u>EDUC 3211</u></a>	Child Development	3
<a href="#"><u>EDUC 3215</u></a>	Teaching Reading in Elementary and Early Childhood Settings	3
<a href="#"><u>EDUC 3217</u></a>	Analysis and Correction of Reading Difficulties	3
<a href="#"><u>EDUC 3218</u></a>	Language Arts for Elementary and Early Childhood Teachers	3
<a href="#"><u>EDUC 3220</u></a>	Teaching Science in the Elementary and Early Childhood Classroom	3
<a href="#"><u>EDUC 3221</u></a>	Methods of Teaching Math	3
<a href="#"><u>EDUC 3430</u></a>	Diverse Literature for Children	3
<a href="#"><u>EDUC 3530</u></a>	Teaching Integrated Social Studies and Humanities	3

Students will elect sufficient additional courses to complete a minimum of 120 credit hours in consultation with their advisor.

## Emphasis Area: Elementary

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

<a href="#"><u>EDUC 3215</u></a>	Teaching Reading in Elementary and Early Childhood Settings	3
<a href="#"><u>EDUC 3217</u></a>	Analysis and Correction of Reading Difficulties	3
<a href="#"><u>EDUC 3218</u></a>	Language Arts for Elementary and Early Childhood Teachers	3
<a href="#"><u>EDUC 3220</u></a>	Teaching Science in the Elementary and Early Childhood Classroom	3
<a href="#"><u>EDUC 3221</u></a>	Methods of Teaching Math	3
<a href="#"><u>EDUC 3222</u></a>	Geometric Concepts for Teachers	3
<a href="#"><u>EDUC 3203</u></a>	Introduction to STEM Education	3

<a href="#"><u>EDUC 3430</u></a>	Diverse Literature for Children	3
<a href="#"><u>EDUC 3530</u></a>	Teaching Integrated Social Studies and Humanities	3
Total Credits		27

Students will elect sufficient additional courses to complete a minimum of 120 credit hours in consultation with their advisor.

## Emphasis Area: Middle School Language Arts

A middle school certificate allows graduates to teach grades 5-9 in the designated subject area. Students must have a 2.5 GPA in their content area coursework.

<a href="#"><u>EDUC 3215</u></a>	Teaching Reading in Elementary and Early Childhood Settings	3
<a href="#"><u>EDUC 3280</u></a>	Instructional Strategies in the Content Area	3
<a href="#"><u>EDUC 3335</u></a>	Curriculum And Instruction Of The Middle School	3
<a href="#"><u>ENGLISH 2171</u></a>	Fiction Writing	3
or <a href="#"><u>ENGLISH 2172</u></a>	Creative Nonfiction Writing	
<a href="#"><u>EDUC 3298</u></a>	Teacher Field Experience III	1
<a href="#"><u>ENGLISH 3302</u></a>	History And Structure Of The English Language	3
<a href="#"><u>ENGLISH 3303</u></a>	The Grammatical Structure of English	3
or <a href="#"><u>ENGLISH 3301</u></a>	A Linguistic Study Of Modern English	
<a href="#"><u>ENGLISH 1170</u></a>	Creative Writing	3
<a href="#"><u>EDUC 3170</u></a>	Teaching Reading and Writing in Middle/High School	3
4 Literature Electives at 2000 level or above		12
Total Credits		37

Students will elect sufficient additional courses to complete a minimum of 120 credit hours in consultation with their advisor.

## Emphasis Area: Middle School Mathematics

A middle school certificate allows graduates to teach grades 5-9 in the designated subject area. Students must have a 2.5 in the designated coursework.

<a href="#"><u>EDUC 3280</u></a>	Instructional Strategies in the Content Area	3
<a href="#"><u>EDUC 3170</u></a>	Teaching Reading and Writing in Middle/High School	3
<a href="#"><u>EDUC 3298</u></a>	Teacher Field Experience III	1

<a href="#"><u>EDUC 3335</u></a>	Curriculum And Instruction Of The Middle School	3
<a href="#"><u>EDUC 3203</u></a>	Introduction to STEM Education	3
<a href="#"><u>EDUC 3222</u></a>	Geometric Concepts for Teachers	3
<a href="#"><u>MATH 1103</u></a>	Fundamentals Of Algebra	3
<a href="#"><u>MATH 1120</u></a>	College Algebra	3-5
or <a href="#"><u>MATH 1140</u></a>	College Algebra	
<del><a href="#"><u>MATH 1208</u></a></del>	<del>Calculus With Analytic Geometry I</del>	<del>4-5</del>
<del>or <a href="#"><u>MATH 1214</u></a></del>	<del>Calculus I</del>	
<del>or <a href="#"><u>MATH 1210</u></a></del>	<del>Calculus I-A</del>	
<a href="#"><u>MATH 1214</u></a>	<a href="#"><u>Calculus I</u></a>	<a href="#"><u>4-5</u></a>
or <a href="#"><u>MATH 1210</u></a>	<a href="#"><u>Calculus I-A</u></a>	
<a href="#"><u>EDUC 3221</u></a>	Methods of Teaching Math	3
<a href="#"><u>MATH 1215</u></a>	Calculus II	4
or <a href="#"><u>MATH 1211</u></a>	Calculus I-B	
or <a href="#"><u>MATH 1212</u></a>	Survey of Calculus	
<a href="#"><u>COMP SCI 1500</u></a>	Computational Problem Solving	3
or <a href="#"><u>IS&amp;T 1551</u></a>	Implementing Information Systems: User Perspective	
<a href="#"><u>STAT 1115</u></a>	Statistics For The Social Sciences I	3
or <a href="#"><u>STAT 3113</u></a>	Applied Engineering Statistics	
Total Credits		39-42

Students will elect sufficient additional courses to complete a minimum of 120 credit hours in consultation with their advisor.

## Emphasis Area: Middle School Science

A middle school certificate allows graduates to teach grades 5-9 in the designated subject area. Students must have a 2.5 GPA in the designated coursework.

<a href="#"><u>EDUC 3280</u></a>	Instructional Strategies in the Content Area	3
<a href="#"><u>EDUC 3170</u></a>	Teaching Reading and Writing in Middle/High School	3
<a href="#"><u>EDUC 3335</u></a>	Curriculum And Instruction Of The Middle School	3
<a href="#"><u>EDUC 3203</u></a>	Introduction to STEM Education	3

<a href="#"><u>EDUC 3220</u></a>	Teaching Science in the Elementary and Early Childhood Classroom	3
<a href="#"><u>BIO SCI 1113</u></a>	General Biology	3
or <a href="#"><u>BIO SCI 1213</u></a>	Principles of Biology	
<a href="#"><u>EDUC 3298</u></a>	Teacher Field Experience III	1
<a href="#"><u>BIO SCI 1219</u></a>	General Biology Lab	1
<a href="#"><u>BIO SCI 1173</u></a>	Introduction to Environmental Sciences	3
<a href="#"><u>PHYSICS 1505</u></a>	Introductory Astronomy	3-4
or <a href="#"><u>PHYSICS 1145</u></a>	College Physics I	
<a href="#"><u>GEOLOGY 1110</u></a>	Physical and Environmental Geology	3
<a href="#"><u>GEOLOGY 1120</u></a>	Evolution Of The Earth	3
<a href="#"><u>HISTORY 3530</u></a>	History of Science	3
or <a href="#"><u>PHILOS 4345</u></a>	Philosophy Of Science	
<a href="#"><u>CHEM 1310</u></a>	General Chemistry I	4
<a href="#"><u>CHEM 1319</u></a>	General Chemistry Laboratory	1
<a href="#"><u>BIO SCI 2223</u></a>	General Genetics	3
Total Credits		43-44

Students will elect sufficient additional courses to complete a minimum of 120 credit hours in consultation with their advisor.

## Emphasis Area: Middle School Social Science

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

<a href="#"><u>EDUC 3280</u></a>	Instructional Strategies in the Content Area	3
<a href="#"><u>EDUC 3170</u></a>	Teaching Reading and Writing in Middle/High School	3
<a href="#"><u>EDUC 3335</u></a>	Curriculum And Instruction Of The Middle School	3
<a href="#"><u>EDUC 3530</u></a>	Teaching Integrated Social Studies and Humanities	3
<a href="#"><u>EDUC 3350</u></a>	Social Studies In The Elementary School	3
<a href="#"><u>HISTORY 1100</u></a>	Early Western Civilization	3
or <a href="#"><u>HISTORY 1200</u></a>	Modern Western Civilization	
<a href="#"><u>EDUC 3298</u></a>	Teacher Field Experience III	1

<u>HISTORY 1300</u>	American History To 1877	3
or <u>HISTORY 1310</u>	American History Since 1877	
<u>PSYCH 4600</u>	Social Psychology	3
DESE Approved American History elective		3
DESE Approved World History Electives		6
History Elective		3
Total Credits		37

Students will elect sufficient additional courses to complete a minimum of 120 credit hours in consultation with their advisor.

## Emphasis Area: Secondary Teaching

This emphasis area is for students who wish to teach a specialized content area in high schools (grades 9-12). Certification areas include art, computer science, general science, and Spanish. Students must take at least 30 hours of department-approved electives in the content area, aligned with the DESE requirements for that certification as listed below. Students must pass the designated Praxis exam and maintain a 2.5 GPA in their content area.

Students must complete the university general education requirements and the education core curriculum (34 credit hours). Students will elect sufficient additional courses to complete a minimum of 120 credit hours in consultation with their advisor.

In content areas not listed here, students have the option of completing a degree in the content. Please see the Teacher Certifications section of this catalog for a complete list of approved certification areas and the corresponding degree and emphasis area associated with each.

### Art Content Area

<u>ART 1001</u>	<u>Special Topics</u>	<u>3</u>
or <u>ART 2000</u>	<u>Special Problems</u>	
<u>ART 1120</u>	<u>Drawing I</u>	<u>3</u>
or <u>ART 2130</u>	<u>Advanced Drawing</u>	
<u>ART 1140</u>	<u>Painting I</u>	<u>3</u>
or <u>ART 2150</u>	<u>Advanced Painting</u>	
<u>ART 1164</u>	<u>Sculpture</u>	<u>3</u>
<u>ART 1180</u>	<u>Art Appreciation</u>	<u>3</u>
or <u>ART 1185</u>	<u>Study Of Film</u>	
or <u>ART 3203</u>	<u>Architectural Design I</u>	

<u>or ART 3275</u>	<u>Foundations of Media Communication</u>	
<u>ART 2001</u>	<u>Special Topics</u>	<u>3</u>
<u>ART 3100</u>	<u>Advanced Art Studio</u>	<u>3</u>
<u>ART 3221</u>	<u>Fundamentals in Photography</u>	<u>3</u>
<u>or SP&amp;M S 3221</u>	<u>Fundamentals in Photography</u>	
<u>ART 3260</u>	<u>Exploring Digital Art</u>	<u>3</u>
<u>EDUC 3280</u>	<u>Instructional Strategies in the Content Area</u>	<u>3</u>
<u>Computer Science Content Area</u>		
<u>BUS 1110</u>	<u>Introduction to Management and Entrepreneurship</u>	<u>3</u>
<u>BUS 2910</u>	<u>Business Law</u>	<u>3</u>
<u>IS&amp;T 1551</u>	<u>Implementing Information Systems: User Perspective</u>	<u>3</u>
<u>IS&amp;T 1552</u>	<u>Implementing Information Systems: Data Perspective</u>	<u>3</u>
<u>IS&amp;T 1750</u>	<u>Introduction to Management Information Systems</u>	<u>3</u>
<u>IS&amp;T 3333</u>	<u>Data Networks and Information Security</u>	<u>3</u>
<u>IS&amp;T 3343</u>	<u>Systems Analysis</u>	<u>3</u>
<u>IS&amp;T 3420</u>	<u>Introduction to Data Science and Management</u>	<u>3</u>
<u>IS&amp;T 4444</u>	<u>Introduction to Data Warehouses</u>	<u>3</u>
<u>IS&amp;T 4654</u>	<u>Introduction to Web Design and Digital Media Studies</u>	<u>3</u>
<u>General Science Content Area</u>		
<u>BIO SCI 1113</u>	<u>General Biology</u>	<u>3</u>
<u>or BIO SCI 1213</u>	<u>Principles of Biology</u>	
<u>BIO SCI 1219</u>	<u>General Biology Lab</u>	<u>1</u>
<u>BIO SCI 1223</u>	<u>Biodiversity</u>	<u>3</u>
<u>BIO SCI 1173</u>	<u>Introduction to Environmental Sciences</u>	<u>3</u>
<u>BIO SCI 1229</u>	<u>Biodiversity Lab</u>	<u>1</u>
<u>BIO SCI 2223</u>	<u>General Genetics</u>	<u>3</u>
<u>CHEM 1310</u>	<u>General Chemistry I</u>	<u>4</u>
<u>CHEM 1319</u>	<u>General Chemistry Laboratory</u>	<u>1</u>
<u>GEOLOGY 1110</u>	<u>Physical and Environmental Geology</u>	<u>3</u>

<u>GEOLOGY 1120</u>	<u>Evolution Of The Earth</u>	<u>3</u>
<u>HISTORY 3530</u>	<u>History of Science</u>	<u>3</u>
<u>or PHILOS 4345</u>	<u>Philosophy Of Science</u>	
<u>PHYSICS 1145</u>	<u>College Physics I</u>	<u>4</u>
<u>PHYSICS 1505</u>	<u>Introductory Astronomy</u>	<u>3</u>
<u>Spanish Content Area</u>		
<u>SPANISH 1101</u>	<u>Elementary Spanish I</u>	<u>4</u>
<u>SPANISH 1102</u>	<u>Elementary Spanish II</u>	<u>4</u>
<u>SPANISH 1180</u>	<u>Intermediate Spanish</u>	<u>4</u>
<u>SPANISH 2110</u>	<u>Basic Spanish Conversation</u>	<u>3</u>
<u>SPANISH 2160</u>	<u>Hispanic Culture</u>	<u>3</u>
<u>SPANISH 2170</u>	<u>Masterpieces Of Hispanic Literature</u>	<u>3</u>
<u>SPANISH 2180</u>	<u>Intermediate Spanish Composition</u>	<u>3</u>
<u>SPANISH 4302</u>	<u>Phonetics and Phonology of Spanish</u>	<u>3</u>
<u>SPANISH 4311</u>	<u>Advanced Spanish Conversation</u>	<u>3</u>

Justification for  
request

Removed stat courses the math department says is being inactivated per their email sent to departments on September 15.

The secondary education emphasis will allow us to house certification programs that do not align with an S&T degree. These include general science, Spanish, and art. This proposal does not add any new courses or require any additional resources.

Adding secondary education emphasis area, approved by MDHE Oct. 1. See attached letter.

Attach Budget

System Approval  
Letter

MDHE Approval [MDHE Approval Letter S&T September 2025.pdf](#)

Supporting Documents [Approved MOS&T Art.pdf](#)  
[Approved MOS&T General Sci 9-12.pdf](#)  
[Submitted Secondary Emphasis Form.docx](#)  
[DESE Computer Science.pdf](#)  
[DESE Spanish.pdf](#)

[ST BS EDU Secondary Teaching Emphasis \(PC\) Form.pdf](#)

[MDHE Receipt ST BS EDU Add Option Rename](#)

[Options AUG2025.pdf](#)

Reviewer

Comments

**Crystal Wilson (wilsoncry) (10/03/25 10:57 am):** With department approval I removed reference of Math 1208 and 1221 from the DC form. These courses are not printed in the catalog and have not been taught since fall 2016.

**Crystal Wilson (wilsoncry) (10/20/25 2:29 pm):** Rollback: Roll back to department chair for additional changes to the DC form.

**Crystal Wilson (wilsoncry) (11/05/25 1:11 pm):** Rollback: Rollback for additional changes.

**Crystal Wilson (wilsoncry) (11/05/25 1:12 pm):** Department has submitted a CC form to change Educ 3211 to Educ 2211. DC form has been updated for this change.

**Crystal Wilson (wilsoncry) (11/19/25 8:12 am):** Rollback: Rollback because department needs to include the curriculum for the certification areas on the DC form for the new emphasis area, Secondary Teaching. Department also needs to upload DESE approval for Spanish and Computer Science for the Secondary Teaching emphasis area.

**Crystal Wilson (wilsoncry) (12/18/25 9:29 am):** Rollback: Rollback: Rollback because department needs to include the curriculum for the certification areas on the DC form for the new emphasis area, Secondary Teaching. Department also needs to upload DESE approval for Spanish and Computer Science for the Secondary Teaching emphasis area. Emphasis areas need to be submitted in a 8-semester plan.

**Crystal Wilson (wilsoncry) (02/11/26 12:26 pm):** Rollback: Rollback because department needs to include the curriculum for the certification areas on the DC form for the new emphasis area, Secondary Teaching. Department also needs to upload DESE approval for Spanish and Computer Science for the Secondary Teaching emphasis area. Emphasis areas need to be submitted in a 8-semester plan.

**Crystal Wilson (wilsoncry) (02/12/26 9:46 pm):** Added content area courses for emphasis area in secondary teaching.

**Crystal Wilson (wilsoncry) (02/13/26 10:30 am):** Updated content area listings per discussion and email with Education department.

**Crystal Wilson (wilsoncry) (02/13/26 1:35 pm):** Uploaded DESE approval for Comp Sci and Spanish certification area.

**Crystal Wilson (wilsoncry) (02/16/26 10:34 am):** Attaching Program Change form and program report.

# Program Change Request

Date Submitted: 02/15/26 5:05 pm

Viewing: **EL ENG-BS : Electrical Engineering BS**

Last approved: 12/24/25 9:35 am

Last edit: 02/16/26 11:34 am

Changes proposed by: Kelvin Erickson (kte)

Catalog Pages Using  
this Program  
[Electrical Engineering](#)

## 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. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar

## Approval Path

1. 02/15/26 9:05 pm  
Jonathan Kimball  
(kimballjw):  
Approved for  
RELECENG Chair
2. 02/17/26 2:55 pm  
Hannah Johnson  
(hjh9x): Approved  
for CCC Secretary
3. 02/22/26 10:14 am  
Theresa Swift  
(thswift): Approved  
for Engineering  
DSCC Chair
4. 03/02/26 12:09 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post
5. 03/23/26 8:22 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

6. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Aug 6, 2014 by  
watkins
2. Aug 13, 2014 by  
pantaleoa
3. Apr 25, 2016 by  
watkins
4. Jun 18, 2018 by  
watkins
5. May 15, 2019 by  
Mehdi Ferdowsi  
(ferdowsi)
6. Mar 3, 2020 by  
ershenb
7. Oct 28, 2020 by  
Marita Raper  
(tibbettsmg)
8. Oct 1, 2021 by  
Crystal Wilson  
(wilsoncry)
9. May 2, 2022 by  
R.Joe Stanley  
(stanleyj)
10. Sep 26, 2022 by  
Kelvin Erickson (kte)
11. Apr 30, 2024 by  
Kelvin Erickson (kte)
12. Jul 1, 2025 by Kelvin  
Erickson (kte)

Rationale for  
Inactivation

13. Dec 24, 2025 by  
Kelvin Erickson (kte)

Supporting  
Documents

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Bachelor of Science
CIM Prospectus	
Academic Level	Undergraduate
Program Code	EL ENG-BS
Department	Electrical & Computer Engr
Discipline	Electrical Engineering
Offered by	
Title	Electrical Engineering BS
CIP Code	14.1001 - Electrical and Electronics Engineering.

Purpose

Intended Audience

Program-Specific  
Admission

## Program Requirements and Description

# Bachelor of Science Electrical Engineering<sup>1</sup>

For the Bachelor of Science degree in Electrical Engineering a minimum of 128 credit hours is required. These requirements are 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. At least two grade points per credit hour must also be attained in all courses taken in Electrical Engineering.

The Electrical 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.

### Free Electives Footnote:

Students are required to take six hours of free electives in consultation with their academic advisor. Credits which do not count towards this requirement are deficiency courses (such as algebra and trigonometry), and extra credits in required courses. Any courses outside of engineering and science must be at least three credit hours.

#### Freshman Year

First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 1305</a>	<u>4</u>	<a href="#">MATH 1215</a> <sup>3</sup>	4
<a href="#">CHEM 1319</a>	1	<a href="#">MECH ENG 1720</a>	3
<a href="#">ENGLISH 1120</a>	3	<a href="#">PHYSICS 1135</a> <sup>3,4</sup>	4
<a href="#">FR ENG 1100</a> <sup>2</sup>	1	Gen Ed Elective <sup>5</sup>	6
<del><a href="#">CHEM 1310</a></del>	<del>4</del>		
<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="#">MATH 1214</a> or <a href="#">1211</a> <sup>3, 17</sup>	4		
	16		17

#### Sophomore Year

First Semester	Credits	Second Semester	Credits
<a href="#">COMP ENG 2210</a> <sup>3,6</sup>	3	<a href="#">COMP SCI 1500</a>	3
<a href="#">COMP ENG 2211</a> <sup>3,6</sup>	1	<a href="#">ELEC ENG 2120</a> <sup>3</sup>	3
<a href="#">ELEC ENG 2010</a> or <a href="#">COMP ENG 2010</a>	1	<a href="#">ELEC ENG 2410</a> <sup>3, 6</sup>	3

<a href="#">ELEC ENG 2100</a> <sup>3,6</sup>	3	<a href="#">ELEC ENG 2411</a> <sup>3, 6</sup>	1
<a href="#">ELEC ENG 2101</a> <sup>3,6</sup>	1	<a href="#">MATH 2222</a> <sup>3</sup>	4
<a href="#">MATH 3304</a> <sup>3</sup>	3	Engineering Science Elective <sup>7</sup>	3
<a href="#">PHYSICS 2135</a> <sup>3,4</sup>	4		
	16		17
Junior Year			
First Semester	Credits	Second Semester	Credits
<a href="#">ELEC ENG 3100</a> <sup>3,6</sup>	3	<a href="#">ELEC ENG 3430</a> <sup>3,6</sup>	3
<a href="#">ELEC ENG 3101</a> <sup>3,6</sup>	1	<a href="#">ELEC ENG 3431</a> <sup>3,6</sup>	1
<a href="#">ELEC ENG 3320</a> <sup>3,6</sup>	3	<a href="#">ELEC ENG 3600</a> <sup>3</sup>	3
<a href="#">ELEC ENG 3321</a> <sup>3,6</sup>	1	El Eng Elective A <sup>10,15</sup>	3
<a href="#">MATH 3108</a>	3	<a href="#">ENGLISH 3560</a> or <a href="#">1160</a>	3
<a href="#">SP&amp;M S 1185</a> <sup>9</sup>	3	<a href="#">STAT 3117</a> <sup>8</sup>	3
	14		16
Senior Year			
First Semester	Credits	Second Semester	Credits
<a href="#">ELEC ENG 4096</a> <sup>3</sup>	1	<a href="#">ELEC ENG 4097</a>	3
El Eng Elective B <sup>10</sup>	3	El Eng Elective C <sup>10</sup>	3
El Eng Elective D <sup>12,15</sup>	3	El Eng Elective E <sup>13,15</sup>	3
El Eng Power Elective <sup>3,6,11</sup>	3	Free Elective <sup>14</sup>	3
El Eng Power Elective Lab <sup>3,6,11</sup>	1	Professional Development Elective <sup>16</sup>	3
Free Elective <sup>14</sup>	3		
Gen Ed Elective <sup>5</sup>	3		
	17		15
Total Credits: 128			

1  
The minimum number of hours required for a degree in Electrical Engineering is 128.

2  
Students that transfer after their freshman year are not required to enroll in [FR ENG 1100](#).

3  
A minimum grade of "C" must be attained in [MATH 1214](#), [MATH 1215](#), [MATH 2222](#), and [MATH 3304](#), [PHYSICS 1135](#) and [PHYSICS 2135](#) (or their equivalents), [ELEC ENG 2100](#), [ELEC ENG 2101](#), [ELEC ENG 2120](#), [ELEC ENG 2410](#), [ELEC ENG 2411](#), [ELEC ENG 3320](#), [ELEC ENG 3321](#), [ELEC ENG 3430](#), [ELEC ENG 3431](#), [ELEC ENG 3100](#), [ELEC ENG 3101](#), and [ELEC ENG 3600](#), the ELEC ENG power elective ([ELEC ENG 3500](#) and [ELEC ENG 3501](#) or [ELEC ENG 3540](#) and [ELEC ENG 3541](#)), [ELEC ENG 4096](#) and [COMP ENG 2210](#) and [COMP ENG 2211](#). Also, students may not enroll in other courses that use these courses as prerequisites until the minimum grade of "C" is attained.

4  
Students may take [PHYSICS 1111](#) and [PHYSICS 1119](#) in place of [PHYSICS 1135](#). Students may take [PHYSICS 2111](#) and [PHYSICS 2119](#) in place of [PHYSICS 2135](#).

5

All electives must be approved by the student's advisor. Gen. Ed. electives must fulfill the Missouri S&T general education requirements applicable to the student's catalog year. These requirements are specified in the current catalog.

6

Students who drop a lecture course prior to the last week to drop a class must also drop the corequisite lab.

7

Students must take [MECH ENG 2340](#), [MECH ENG 2519](#), [MECH ENG 2527](#), [PHYSICS 2305](#), [PHYSICS 2311](#), [PHYSICS 2401](#), [PHYSICS 4311](#), [NUC ENG 3103](#), [NUC ENG 3205](#), [CER ENG 4240](#), [CHEM 2210](#), [BIO SCI 2213](#), or [BIO SCI 2223](#). The following pairs of course are substitutions: [CIV ENG 2200](#) and [MECH ENG 2350](#)

8

Students may replace [STAT 3117](#) with [STAT 5643](#).

9

Students may replace [SP&M S 1185](#) with the ROTC sequence of [MIL ARMY 4250](#) and [MIL ARMY 4500](#) or [MIL AIR 4110](#) and [MIL AIR 4120](#).

10

ELEC ENG Electives A, B, and C must be chosen from ELEC ENG 56XX, [ELEC ENG 3500](#), [ELEC ENG 3540](#), [ELEC ENG 3410](#), [ELEC ENG 3250](#), [ELEC ENG 3340](#), [ELEC ENG 3440](#), [ELEC ENG 3120](#), and [COMP ENG 3150](#). Only one ELEC ENG 56XX course may be used.

11

The ELEC ENG Power Elective may be satisfied with [ELEC ENG 3500](#) and [ELEC ENG 3501](#) or [ELEC ENG 3540](#) and [ELEC ENG 3541](#).

12

ELEC ENG Elective D must be a 4XXX-level or above ELEC ENG or COMP ENG course with at least a 3-hour lecture component. [ELEC ENG 4000](#), [ELEC ENG 5000](#), [COMP ENG 4000](#), [COMP ENG 5000](#), [ELEC ENG 4099](#), [COMP ENG 4099](#), [ELEC ENG 4096](#), [COMP ENG 4096](#), [ELEC ENG 4097](#), [COMP ENG 4097](#), [ELEC ENG 5070](#), [COMP ENG 5070](#), ELEC ENG 58XX, and COMP ENG 58XX may not be used for Elective D.

13

ELEC ENG Elective E may be any 3XXX-level or above ELEC ENG or COMP ENG course except [ELEC ENG 3002](#), ELEC ENG 38XX, [ELEC ENG 4096](#), [ELEC ENG 4097](#), [ELEC ENG 5070](#), [COMP ENG 3002](#), COMP ENG 38XX, [COMP ENG 4000](#), [COMP ENG 4096](#), [COMP ENG 4097](#), and [COMP ENG 5070](#).

14

Students are required to take six hours of free elective in consultation with their academic advisors. Credits that do not count toward this requirement are deficiency courses (such as algebra and trigonometry) and extra credits from courses meeting other requirements. Any courses outside of engineering and science must be at least three credit hours. ELEC ENG 28XX, ELEC ENG 38XX, [ELEC ENG 4096](#), [ELEC ENG 4097](#), COMP ENG 28XX, COMP ENG 38XX, [COMP ENG 4096](#) and [COMP ENG 4097](#) may not be used for free electives. No more than one credit hour of [ELEC ENG 3002](#) or [COMP ENG 3002](#) may be applied to the BS degree for free electives.

15

Students that pursue an optional degree emphasis area have restricted options for EI Eng Electives A, D, and E. Students admitted to the accelerated BS/MS program must satisfy EI Eng Electives D and E with 5xxx or 6xxx-level courses and a minimum grade of B.

Students must take one of the following courses: [BUS 5980](#), [ECON 4430](#), [ECON 5337](#), [ENG MGT 2310](#), [ENG MGT 3320](#), [ENG MGT 4110](#), [ENG MGT 5514](#), or [PHILOS 3225](#).

Both [MATH 1210](#) and [MATH 1211](#) may be taken in place of [MATH 1214](#). A C or better grade is required in both courses.

All Electrical Engineering students are encouraged to take the fundamentals of Engineering Examination prior to graduation. It is the first step toward becoming a registered professional engineer.

An accelerated BS/MS program and a formal emphasis in circuits and electronics, optics and devices, controls and systems, communications and signal processing, power and energy, electromagnetics, or computer engineering are optional.

## Emphasis Areas for Electrical Engineering

### **Circuits and Electronics, Communications and Signal Processing, Computer Engineering, Controls and Systems, Electromagnetics, Optics and Devices, Power and Energy**

A declared emphasis area is not required. A student may choose to obtain an Electrical Engineering degree without a formal emphasis or may choose to obtain an Electrical Engineering degree with a declared emphasis in one or more of the emphasis areas of electrical engineering. A major change request is required to add the emphasis area option to the degree program.

For students who seek an Electrical Engineering degree without a formal emphasis, these emphasis areas may guide the choice of their ELEC ENG Electives A, B, C, D, and E as well as their free electives. Students should consult with their advisors on such course selections.

For students who seek an Electrical Engineering degree with a declared emphasis, courses in the declared emphasis area will be applied to ELEC ENG Electives A, D, and E in the degree requirements. For students who choose to have multiple emphasis areas, the additional courses will apply to ELEC ENG Elective B or C and free elective requirements. Students should seek guidance from their advisors on emphasis areas and on courses that are relevant to more than one emphasis area. Students may have an emphasis area or emphasis areas listed on their transcript by completing three three-credit-hour courses in electrical and computer engineering from the designated lists with at least one of the courses being at the 4XXX-level or above. This requirement will be satisfied by completing the relevant ABC Elective course, a 4XXX-level or above course for Elective D, and another 3XXX-level or above course for Elective E from the designated listing. The required ELEC ENG courses [ELEC ENG 3320](#), [ELEC ENG 3430](#), [ELEC ENG 3100](#), and [ELEC ENG 3600](#) and the course used to satisfy the power requirement ([ELEC ENG 3500](#) or [ELEC ENG 3540](#)) may not be used to meet the three course requirement. Transfer courses do not apply to emphasis areas. A co-listed course may count toward both areas. Experimental courses [ELEC ENG 3001](#), [ELEC ENG 4001](#), [ELEC ENG 5001](#), [COMP ENG 3001](#), [COMP ENG 4001](#), or [COMP ENG 5001](#) require departmental approval to apply toward an emphasis area.

### **Circuits and Electronics**

[ELEC ENG 3120](#)

Electronics II

3

ELEC ENG 41XX and ELEC ENG 51XX Courses

<b>Communications and Signal Processing</b>		
<a href="#"><u>ELEC ENG 3410</u></a>	Digital Signal Processing	3
<a href="#"><u>ELEC ENG 3440</u></a>	Digital Communications II	3
ELEC ENG 44XX and ELEC ENG 54XX Courses		
<b>Computer Engineering</b>		
ELEC ENG 3410, COMP ENG 3XXX-level or above Courses (Excluding COMP ENG 3000, COMP ENG 4000, COMP ENG 5000, COMP ENG 3002, COMP ENG 4096, COMP ENG 4097, and COMP ENG 5070) See the COMP ENG degree program for details on COMP ENG areas.		
<b>Controls and Systems</b>		
<a href="#"><u>ELEC ENG 3340</u></a>	Basic Programmable Logic Controllers	3
ELEC ENG 43XX and ELEC ENG 53XX Courses		
<b>Electromagnetics</b>		
ELEC ENG 46XX and ELEC ENG 56XX Courses		
<b>Optics and Devices</b>		
<a href="#"><u>ELEC ENG 3250</u></a>	Electronic And Photonic Devices	3
ELEC ENG 42XX and ELEC ENG 52XX Courses		
<b>Power and Energy</b>		
<a href="#"><u>ELEC ENG 3500</u></a>	Electromechanics	3
<a href="#"><u>ELEC ENG 3540</u></a>	Power System Design And Analysis	3
<a href="#"><u>ELEC ENG 5150</u></a>	Photovoltaic Systems Engineering	3
<a href="#"><u>ELEC ENG 5520</u></a>	Power Electronics	3
<a href="#"><u>ELEC ENG 5521</u></a>	Power Electronics Laboratory	2
ELEC ENG 45XX and ELEC ENG 55XX Courses		

Justification for  
request

Chem 1310 replaced by Chem 1305 by request from Chemistry.

Revised the engineering science elective courses so that Comp Eng and Elec Eng have the same list.

These changes were approved by the ECE faculty on Feb 12, 2026.

Attach Budget

System Approval  
Letter

MDHE Approval

Supporting  
Documents

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/16/26 11:34 am):** Alphabetized Plan of Study Grid in all semesters.

# Program Change Request

Date Submitted: 02/23/26 3:25 pm

## Viewing: **EL ENG-MI : Minor in Electrical Engineering**

Last approved: 07/20/15 12:24 pm

Last edit: 03/19/26 11:17 am

Changes proposed by: Kelvin Erickson (kte)

Catalog Pages Using  
this Program  
[Electrical Engineering](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	<a href="#">Minor</a>
Academic Level	<a href="#">Undergraduate</a>
Program Code	EL ENG-MI
Department	Electrical & Computer Engr
Discipline	<a href="#">Electrical Engineering</a>
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. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar

### Approval Path

1. 02/24/26 10:08 am  
Jonathan Kimball (kimballjw):  
Approved for RELECENG Chair
2. 02/26/26 9:26 am  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/26/26 4:20 pm  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:10 pm  
Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:22 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

6. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Feb 17, 2014 by kleb6b
2. Feb 17, 2014 by kleb6b
3. Jul 23, 2014 by watkins
4. Jul 31, 2014 by pantaleoa
5. Aug 13, 2014 by Lahne Black (lahne)
6. Jul 20, 2015 by pantaleoa

Minor in Electrical Engineering

CIP Code

Program Requirements and Description

## Minor in Electrical Engineering

A minor in electrical ~~engineering~~ ~~engineering~~ will require the following:

Pass ELEC ENG 2100 with ~~the ELEC-ENG Advancement Exam I ( ELEC-ENG 2100 final) with~~ a "C" or better grade or pass the ELEC ENG 2100 final exam with a "C" grade or ~~or~~ better. \*

Pass ELEC ENG 2120 with ~~ELEC-ENG 2120 and ELEC-ENG Advancement Exam II with~~ a "C" grade or better.

Pass 12 additional hours of ELEC ENG coursework excluding ELEC ENG 28XX, 38XX, ELEC ENG 4096, ELEC ENG 4097, and ELEC ENG 4099. At least 6 3 lecture hours at the 3XXX level and 3 lecture hours at the 4XXX level ~~4XXX-level~~ or above are required. A "C" grade or better is required for all 12 hours. No transfer courses and

no more than 3 hours of ELEC ENG 3000, ELEC ENG 4000, or ELEC ENG 5000 may be used to meet the requirements. The course choice for the 12 additional hours are subject to the approval of the minor advisor.  
\*One opportunity will be given to pass the ELEC ENG 2100 final exam ~~ELEC ENG Advancement Exam I~~ if a student has prior circuit coursework or experience. Otherwise, the student must pass ELEC ENG 2100 with a "C" grade or better. ~~ELEC ENG 2100.~~

Justification for  
request

Passing the EE Advancement Exam I has been eliminated as a requirement for passing Elec Eng 2100. Passing the EE Advancement Exam II has been eliminated as a requirement for passing Elec Eng 2120. Approved by ECE faculty August 22, 2025.

Attach Budget

System Approval  
Letter

MDHE Approval

Supporting  
Documents

Reviewer  
Comments

**Hannah Johnson (hjh9x) (03/19/26 11:17 am):** Changed 'at least 3 lecture hours at the 4xxx level or above' to 'at least 6 lecture hours at the 3XXX level and 3 lecture hours at the 4XXX level or above' per email from Dr. Kelvin Erickson.

# Program Change Request

Date Submitted: 02/23/26 2:54 pm

Viewing: **FRENCH-MI : French Minor**

Last approved: 02/18/14 11:34 am

Last edit: 03/19/26 9:18 am

Changes proposed by: Irina Ivliyeva (ivliyeva)

Catalog Pages Using  
this Program

[Foreign Languages](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	<a href="#">Minor</a>
Academic Level	<a href="#">Undergraduate</a>
Program Code	FRENCH-MI
Department	Arts, Languages & Philosophy
Discipline	<a href="#">French</a>
Title	

## 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

## Approval Path

1. 02/22/26 10:43 am  
Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
2. 02/23/26 2:31 pm  
Hannah Johnson (hjh9x): Rollback to Initiator
3. 02/23/26 3:02 pm  
Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
4. 02/23/26 3:50 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 02/27/26 8:26 am  
Alejandra Sobrado (asgx4): Approved for Arts &

Humanities DSCC  
Chair

6. 03/02/26 12:10 pm

Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post

7. 03/23/26 8:22 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

8. 03/23/26 12:02 pm

Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Feb 18, 2014 by  
Irina Ivliyeva  
(ivliyeva)

French Minor

CIP Code

Program Requirements and Description

## French Minor

A French minor will consist of six ~~nine~~ hours beyond the 12 hours B.A. foreign language requirement selected in consultation with a faculty advisor. The additional six ~~nine~~ hours must be at ~~the 2000-level~~ or above the 3000-level, ~~higher~~, with at least one ~~two~~ of the ~~the~~ courses at the ~~the~~ 4000-level.

Justification for  
request

The proposed reduction from 21 to 18 credit hours aligns French Minor more closely with the campus average of 15 credit hours, ensuring consistency with national trends and institutional

norms, as well as maintaining competitiveness among undergraduate minors. The streamlined curriculum preserves all core learning outcomes and disciplinary rigor while allowing students to complete the minor more efficiently without compromising quality.

The reduction will also allow students greater flexibility in degree planning, making the minor more accessible to students across majors and supporting timely graduation. In addition, optimizing required credits will enable more strategic allocation of faculty teaching capacity, more effective course rotations at the upper level to increase enrollment, freeing up time for development of new curriculum, and addressing emerging interdisciplinary initiatives that strengthen the program's long-term sustainability and responsiveness.

This change was approved by the Modern Languages Section on 02.09.26 and endorsed by the ALP chair.

Attach Budget

System Approval

Letter

MDHE Approval

Supporting

Documents

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/23/26 2:31 pm):** Rollback: Rolled back per request from Irina Ivliyeva.

**Hannah Johnson (hjh9x) (03/19/26 9:18 am):** Edited the description/ requirements to say instead of above 2000 level, to say at or above 3000 level.

# Program Change Request

Date Submitted: 01/18/26 4:09 pm

Viewing: **GEO ENG-PHD : Geological Engineering  
PhD**

Last approved: 07/01/20 1:38 pm

Last edit: 01/18/26 4:09 pm

Changes proposed by: Jeremy Maurer (jlmd9g)

Catalog Pages Using  
this Program  
[Geological Engineering](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	<a href="#">Doctor of Philosophy</a>
Academic Level	<a href="#">Graduate</a>
Program Code	GEO ENG-PHD
Department	Earth Sciences and Engineering
Discipline	Geological Engineering
Title	

## 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

## Approval Path

1. 11/26/25 3:20 pm  
Stephen Gao (sgao):  
Approved for  
RGEOENG Chair
2. 12/08/25 10:31 am  
Jade McCain  
(jm558v): Approved  
for CCC Secretary
3. 12/12/25 11:30 am  
Theresa Swift  
(thswift): Approved  
for Engineering  
DSCC Chair
4. 12/19/25 3:38 pm  
Jade McCain  
(jm558v): Approved  
for Pending CCC  
Agenda post
5. 01/15/26 8:44 am  
Crystal Wilson

(wilsoncry):

Rollback to Initiator

6. 01/19/26 10:59 pm  
Stephen Gao (sgao):

Approved for  
RGEOSENG Chair

7. 02/10/26 7:26 am  
Crystal Wilson

(wilsoncry):

Approved for CCC  
Secretary

8. 02/20/26 4:48 pm  
Theresa Swift

(thswift): Approved  
for Engineering  
DSCC Chair

9. 03/02/26 12:10 pm

Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post

10. 03/23/26 8:22 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

11. 03/23/26 12:02 pm

Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Jul 1, 2020 by Leslie  
Gertsch (gertschl)

Geological Engineering PhD

CIP Code

## Program Requirements and Description

The PhD program ~~Both the PhD and DE programs~~ consist of 72 credit hours and the DE program consists of 90 credit hours beyond the ~~credit hours beyond the~~ BS degree or 42 credit hours beyond the MS degree for the PhD and 60 hours beyond the MS degree for the DE program. ~~credit hours beyond the MS degree.~~ If these degrees are not in geological engineering or a related field, remedial courses may be required. No course below the 4000-level ~~the 5000-level~~ may be applied to the degree ~~the degree~~ requirements. The ~~The~~ schedule of ~~of~~ course work, research, and/or engineering design is developed by the ~~the~~ student in consultation with, and ~~and~~ subject to the ~~the~~ approval of, their advising committee. There is no foreign language requirement. Details of ~~of~~ requirements for ~~for~~ this program ~~program~~ not covered here can be found in the ~~the~~ Academic Program Procedures section of ~~of~~ this catalog.

In addition to the course requirements and regardless of other degrees held, the PhD student must prepare and defend a comprehensive dissertation based on analytical, numerical, and/or experimental research on an important problem; their solution must add constructively to the body of human knowledge. ~~knowledge.~~ A minimum of 50% of the course work credit hours and the research credit hours completed during the PhD program must be in geological engineering. ~~Enrollment in Geo Eng 6010 (Geological Engineering Graduate Seminar) is required for four semesters.~~ For a student with a MS degree, 30 credit hours from the MS program are accepted toward the PhD requirement. ~~A minimum of 50% of the course work credit hours~~ student holding a BS degree and the research credit hours completed during pursuing the PhD program directly must be in geological engineering. ~~complete 90 total credit hours.~~ Enrollment in Geo Eng 6010 (Geological Engineering Graduate Seminar) is required for four semesters.

For a student with a MS degree, 30 credit hours from the MS program are accepted toward the PhD requirement. A student holding a BS degree and pursuing the PhD directly must complete 72 total credit hours.

For the self-motivated student with access to an appropriate research project, a geological engineering PhD can be earned online. This option is designed for working professionals who do not wish to take an extended leave of absence from their posts, such as in the military, government, and research sectors.

Justification for  
request

Required credits is updated from 90 to 72 for the PhD in Geological Engineering, while keeping the DE degree at 90.

Attach Budget

System Approval  
Letter

MDHE Approval

Supporting  
Documents

Reviewer

Comments

**Jade McCain (jm558v) (12/16/25 8:34 am):** Changed start term to Fall 2026.

**Crystal Wilson (wilsoncry) (01/15/26 8:44 am):** Rollback: Rollback to initiator for revisions. Per the graduate catalog, the DE program is a 90 credit hour program, not 72.

# Program Change Request

Date Submitted: 02/23/26 2:55 pm

Viewing: **GERMAN-MI : German Minor**

Last approved: 02/18/14 11:34 am

Last edit: 03/19/26 9:20 am

Changes proposed by: Irina Ivliyeva (ivliyeva)

Catalog Pages Using  
this Program

[Foreign Languages](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	<a href="#">Minor</a>
Academic Level	<a href="#">Undergraduate</a>
Program Code	GERMAN-MI
Department	Arts, Languages & Philosophy
Discipline	<a href="#">German</a>
Title	

## 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

## Approval Path

1. 02/22/26 10:44 am  
Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
2. 02/23/26 2:31 pm  
Hannah Johnson (hjh9x): Rollback to Initiator
3. 02/23/26 3:04 pm  
Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
4. 02/23/26 3:50 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 02/27/26 8:26 am  
Alejandra Sobrado (asgx4): Approved for Arts &

Humanities DSCC  
Chair

6. 03/02/26 12:10 pm

Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post

7. 03/23/26 8:22 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

8. 03/23/26 12:02 pm

Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Feb 18, 2014 by  
Irina Ivliyeva  
(ivliyeva)

German Minor

CIP Code

Program Requirements and Description

## German Minor

A German minor will consist of six ~~nine~~ hours beyond the 12 hours B.A. foreign language requirement selected in consultation with a faculty advisor. The additional six ~~nine~~ hours must be at ~~the 2000-level~~ or above the 3000-level, ~~higher~~, with at least one ~~two~~ of the ~~the~~ courses at the ~~the~~ 4000-level.

Justification for  
request

The proposed reduction from 21 to 18 credit hours aligns German Minor more closely with the campus average of 15 credit hours, ensuring consistency with national trends and institutional

norms, as well as maintaining competitiveness among undergraduate minors. The streamlined curriculum preserves all core learning outcomes and disciplinary rigor while allowing students to complete the minor more efficiently without compromising quality.

The reduction will also allow students greater flexibility in degree planning, making the minor more accessible to students across majors and supporting timely graduation. In addition, optimizing required credits will enable more strategic allocation of faculty teaching capacity, more effective course rotations at the upper level to increase enrollment, freeing up time for development of new curriculum, and addressing emerging interdisciplinary initiatives that strengthen the program's long-term sustainability and responsiveness.

This change was approved by the Modern Languages Section on 02.09.26 and endorsed by the ALP chair.

Attach Budget

System Approval

Letter

MDHE Approval

Supporting

Documents

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/23/26 2:31 pm):** Rollback: Rolled back per request from Irina Ivliyeva.

**Hannah Johnson (hjh9x) (03/19/26 9:20 am):** Edited description/requirements to say 'at or above 3000 level' instead of 'above 2000 level' per Minor policy.

# Program Change Request

## New Program Proposal

Date Submitted: 01/09/26 10:33 am

Viewing: **PROPOSED : Data Science BS**

Last edit: 03/20/26 8:53 am

Changes proposed by: Daniel Reardon (reardond)

Rationale for  
Supporting

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Bachelor of Science
Academic Level	Undergraduate
Program Code	PROPOSED
Department	Mathematics & Statistics
Discipline	Mathematics
Title	

### In Workflow

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

### Approval Path

1. 01/15/26 4:49 pm  
John Singler  
(singlerj): Approved for RMATHEMA Chair
2. 01/27/26 3:38 pm  
Crystal Wilson  
(wilsoncry): Approved for CCC Secretary
3. 02/04/26 8:14 am  
Crystal Wilson  
(wilsoncry): Rollback to CCC Secretary for RCOMPSCI Chair
4. 02/04/26 9:17 am

Crystal Wilson  
(wilsoncry):  
Approved for CCC  
Secretary

5. 02/12/26 7:34 pm  
Seung-Jong Park  
(spxzb): Approved  
for RCOMPSCI Chair

6. 02/13/26 1:32 pm  
Crystal Wilson  
(wilsoncry):  
Approved for CCC  
Secretary

7. 02/20/26 4:47 pm  
Theresa Swift  
(thswift): Approved  
for Engineering  
DSCC Chair

8. 02/26/26 4:30 pm  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC Chair

9. 03/02/26 12:10 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post

10. 03/23/26 8:22 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

11. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

CIP Code

30.7001 - Data Science, General.

Purpose

Intended Audience

Program-Specific

Program Requirements and Description

## Bachelor of Science

### Data Science

The B.S. in Data Science curriculum is designed to give students an interdisciplinary educational experience that provides a solid foundation in computer science, mathematics, and statistics. The curriculum prepares students to solve challenging data-driven problems across a variety of application areas. Students pursuing the B.S. in Data Science must declare an emphasis area in either Computer Science or Mathematics and Statistics. Courses within the emphasis areas provide more advanced discipline-specific content. Students can pursue interests aligned with specific data science applications (e.g., biology, business, economics) through free elective courses.

A minimum of 120 credit hours is required for a bachelor of science degree in Data Science. A minimum grade of "C" is required in each computer science, mathematics, and statistics course counted toward the B.S. in Data Science. These requirements for the B.S. degree are in addition to credit received for algebra, trigonometry, and basic ROTC.

Freshman Year

First Semester	Credits	Second Semester	Credits
Basic ROTC (if elected) <sup>12</sup>	0	Basic ROTC (if elected) <sup>12</sup>	0
<a href="#"><u>COMP SCI 1500</u></a> <sup>1</sup>	3	Behavioral and Social Sciences Requirement <sup>6,9</sup>	3
<a href="#"><u>ECON 1100</u></a> or <a href="#"><u>1200</u></a>	3	<a href="#"><u>COMP SCI 1200</u></a> <sup>1</sup>	3
<a href="#"><u>ENGLISH 1120</u></a>	3	<a href="#"><u>COMP SCI 1570</u></a> <sup>1</sup>	3
<a href="#"><u>MATH 1101</u></a> or <a href="#"><u>FR ENG 1100</u></a> <sup>1</sup>	1	<a href="#"><u>COMP SCI 1580</u></a> <sup>1</sup>	1
<a href="#"><u>MATH 1214</u></a> or <a href="#"><u>1211</u></a> <sup>1</sup>	4	<a href="#"><u>ENGLISH 1160</u></a> or <a href="#"><u>SPM S 1185</u></a> <sup>4</sup>	3
Natural Science Elective <sup>5</sup>	3	<a href="#"><u>MATH 1215</u></a> <sup>1</sup>	4
	17		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
Basic ROTC (if elected) <sup>12</sup>	0	Basic ROTC (if elected) <sup>12</sup>	0
<a href="#"><u>COMP SCI 1575</u></a> <sup>1</sup>	3	<a href="#"><u>COMP SCI 2300</u></a> <sup>1</sup>	3
<a href="#"><u>COMP SCI 1585</u></a> <sup>1</sup>	1	<a href="#"><u>COMP SCI 2500</u></a> <sup>1</sup>	3

<a href="#">MATH 2222</a> <sup>1</sup>	4	Humanities and Fine Arts Requirement <sup>7,9</sup>	3
Natural Science Elective with Laboratory <sup>5</sup>	4	<a href="#">MATH 3108</a> <sup>1</sup>	3
Statistics Requirement <sup>1,3</sup>	3	<a href="#">STAT 5346</a> or <a href="#">COMP SCI 5204</a> <sup>1</sup>	3
	15		15
Junior Year			
First Semester	Credits	Second Semester	Credits
<a href="#">COMP SCI 3402</a> <sup>1</sup>	3	Electives <sup>2,11</sup>	6
Electives - Emphasis Area <sup>1,2</sup>	6	Electives - Emphasis Area <sup>1,2</sup>	6
Humanities and Fine Arts Requirement <sup>7,9</sup>	3	Humanities, Arts, and Social Sciences Requirement <sup>8,9</sup>	3
<a href="#">STAT 5353</a> <sup>1</sup>	3		
	15		15
Senior Year			
First Semester	Credits	Second Semester	Credits
Electives - Emphasis Area <sup>1,2</sup>	6	Electives - Data Science <sup>1,2,10</sup>	3
Electives <sup>2,11</sup>	8	Electives <sup>2,11</sup>	9
	14		12

Total Credits: 120

1

A minimum grade of "C" is required in each computer science, mathematics, and statistics course counted toward the B.S. in Data Science.

2

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

3

The Statistics Requirement may be met by [STAT 3113](#), [STAT 3115](#), or [STAT 3117](#).

4

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

5

Natural sciences courses must be chosen from at least two specific disciplines: Biological Sciences ([BIO SCI 1113](#) or higher), Chemistry ([CHEM 1301](#) or higher), Geology ([GEOLOGY 1110](#) or higher), or Physics ([PHYSICS 1111](#) or higher). At least one credit hour of lab is required.

6

The Behavioral and Social Sciences Requirement may be met by selecting one course from [FRENCH 1101](#), [FRENCH 1102](#), [FRENCH 1180](#), [GERMAN 1101](#), [GERMAN 1102](#), [GERMAN 1180](#), [HISTORY 1100](#), [HISTORY 1200](#), [HISTORY 2110](#), [PHILOS 1105](#), [PHILOS 1115](#), [POL SCI 1200](#), [PSYCH 1101](#), [RUSSIAN 1101](#), [RUSSIAN 1102](#), [RUSSIAN 1180](#), [SPANISH 1101](#), [SPANISH 1102](#), or [SPANISH 1180](#).

7

The Humanities and Fine Arts Requirement may be met by selecting two courses from two different disciplines from [HISTORY 1300](#), [HISTORY 1310](#), [ART 1180](#), [MUSIC 1150](#), [THEATRE 1150](#), and [ENGLISH 1211](#), [ENGLISH 1212](#), [ENGLISH 1221](#), [ENGLISH 1222](#), and [ENGLISH 1231](#) (or Non-prerequisite Literature).

The Humanities, Arts, and Social Sciences Requirement may be met by selecting three additional credit hours from History, Art, Music, Theater, English and Technical Communication, Philosophy, Political Science, Psychology, Economics, Etymology, or Foreign Languages.

9

When selecting courses to fulfill the Behavioral and Social Science Requirement, the Humanities and Fine Arts Requirement, and the Humanities, Arts, and Social Sciences Requirement, you must select at least one course from [HISTORY 1200](#), [HISTORY 1300](#), [HISTORY 1310](#), or [POL SCI 1200](#) to satisfy the Williams Law requirement.

10

The Data Science elective course may be selected from the following:

[COMP SCI 3200](#), [COMP SCI 5206](#), [COMP SCI 5300](#), [COMP SCI 5400](#), [COMP SCI 5401](#), [COMP SCI 5402](#), [COMP SCI 5411](#), [COMP SCI 5420](#), [COMP SCI 5421](#), [COMP SCI 5700](#), [ECON 5360](#), [ECON 5380](#), [ENG MGT 5414](#), [MATH 3109](#), [MATH 3304](#), [MATH 5107](#), [MATH 5601](#), [MATH 5604](#), [MATH 5670](#), [MATH 5680](#), [MATH 5737](#), [MATH 5762](#), [STAT 4210](#), [STAT 5210](#), [STAT 5270](#), [STAT 5290](#), [STAT 5364](#), [STAT 5643](#), [STAT 5644](#), [STAT 5814](#), [IS&T 5450](#), [IS&T 5520](#).

No course may be used to satisfy more than one requirement in the B.S. in Data Science degree curriculum.

11

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

12

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.

## Emphasis Areas

### Computer Science Emphasis Area

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Required courses:

<a href="#">COMP SCI 5206</a>	Probability and Its Applications in Computing	3
<a href="#">COMP SCI 5400</a>	Introduction To Artificial Intelligence	3
<a href="#">COMP SCI 5420</a>	Introduction to Machine Learning	3
or <a href="#">COMP SCI 5402</a>	Introduction to Data Mining	
<a href="#">COMP SCI 5421</a>	Reinforcement Learning	3
<a href="#">COMP SCI 5480</a>	Deep Learning	3
<a href="#">COMP SCI 5700</a>	Bioinformatics	3

### Mathematics and Statistics Emphasis Area

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Required courses:

<a href="#">STAT 5643</a>	Probability And Statistics	3
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<a href="#"><u>STAT 5644</u></a>	Mathematical Statistics	3
<a href="#"><u>MATH 5670</u></a>	Scientific Programming with Python	3
Select three of the following:		
<a href="#"><u>MATH 3109</u></a>	Foundations Of Mathematics	3
<a href="#"><u>MATH 5680</u></a>	Mathematics of Machine Learning	3
<a href="#"><u>STAT 4210</u></a>	Introduction to Statistical Data Science	3
<a href="#"><u>STAT 5364</u></a>	Causal Data Science	3

Justification for  
request

The Mathematics and Statistics Department (College of Arts, Sciences, and Education) and the Computer Science Department (College of Engineering and Computing) at Missouri University of Science and Technology (Missouri S&T) are jointly proposing a Bachelor of Science (B.S.) in Data Science. This program will capitalize on the institution's STEM-focused strengths to develop an interdisciplinary curriculum that integrates core principles from Computer Science, Mathematics, and Statistics. The program aims to address workforce needs by providing a robust educational foundation that enables students to solve data-driven problems and adapt to emerging tools. Furthermore, this initiative seeks to boost undergraduate enrollment by attracting new students eager to explore the integration of mathematics, statistics, and computer science for a career in data science.

The demand for data science professionals is surging both nationally [1] and within Missouri [2]. Employers seek individuals with a strong foundation in computational, mathematical, and statistical thinking. Simultaneously, students are expressing growing interest in data science careers, as evidenced by the rising number of double majors and emphasis area students in Data Science and Statistics within the B.S. in Applied Mathematics program at Missouri S&T. This trend indicates a clear alignment between student aspirations and industry needs.

The proposed B.S. in Data Science program is designed to give students an interdisciplinary educational experience, that provides a solid foundation in computer science, mathematics, and statistics through a set of core courses (48 credit hours). Students will select an emphasis area (21 credit hours) in either the (1) Mathematics & Statistics track or (2) Computer Science track. Additionally, students will complete 28 credits of general education requirements and 23 free electives, where they can personalize their studies and potentially pursue interests aligned with specific data science applications. Students who select the Mathematics and Statistics track will earn their degree from the College of Arts, Sciences, and Education, whereas students who select the Computer Science track will earn their degree from the College of Engineering and Computing.

Missouri S&T is in an excellent position to offer this program, given its strong STEM-focused campus environment, ranking as the #1 public university in Missouri for return on investment [3] and as the #3 public university nationwide for career placement [4]. The two participating departments have developed a comprehensive core curriculum that integrates existing courses. By leveraging these current resources and expertise, the program is projected to generate a net positive revenue beginning in its first year and thereafter, ensuring economic sustainability.

In summary, the proposed B.S. in Data Science program at Missouri S&T aligns with the growing demand for data science professionals and leverages the university's strengths in STEM education. By providing students with a comprehensive, interdisciplinary education, the program aims to produce graduates who are well-equipped to meet the challenges of the data-driven future. This initiative will enhance the university's academic offerings and contribute to the economic development of Missouri by supplying a skilled workforce in a rising area of need.

Attach Budget [BS Data Science Budget.docx](#)

System Approval  
Letter

MDHE Approval [MDHE Approval Letter\\_S&T\\_December 2025.pdf](#)

Supporting  
Documents [BS Data Science Curriculum.docx](#)

Reviewer

Comments

**Crystal Wilson (wilsoncry) (01/16/26 12:09 pm):** Added PROPOSED to the program code and BS to the title.

**Crystal Wilson (wilsoncry) (01/26/26 2:21 pm):** Fixed footnote formatting.

**Crystal Wilson (wilsoncry) (01/27/26 3:34 pm):** Per department approval for differences between supporting documents and what was originally submitted on the DC form, added CS 5204 as a co-list to Stat 5346; added CS 5411 to list of data science elective courses. Reformatted footnote 6 and 10.

**Crystal Wilson (wilsoncry) (02/04/26 8:14 am):** Rollback: Rollback to CCC Secretary. Per Dr. Raper, Data Science will only go through the math department and sciences DSCC. Removing comp sci chair and engineering DSCC.

**Crystal Wilson (wilsoncry) (02/04/26 8:16 am):** Added Bachelor of Science Data Science heading to the DC form.

**Hannah Johnson (hjh9x) (02/12/26 1:12 pm):** Per email from Dr. Raper and Dr. Park (Feb 11, 2026) I removed course CS 5401 Evolutionary Computing and added the CS 5480 Deep Learning course in the emphasis area.

**Hannah Johnson (hjh9x) (03/16/26 10:57 am):** Alphabetized the plan of study grid and the

course list for Mathematics and Statistics emphasis area.

**Crystal Wilson (wilsoncry) (03/20/26 8:53 am):** Placed footnote 2 on plan of study grid per department request.

# Program Change Request

## New Program Proposal

Date Submitted: 01/09/26 10:44 am

Viewing: **PROPOSED : Data Science MS**

Last edit: 02/12/26 1:18 pm

Changes proposed by: Daniel Reardon (reardond)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Master of Science
Academic Level	Graduate
Program Code	PROPOSED
Department	Mathematics & Statistics
Discipline	Mathematics
Title	

### In Workflow

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

### Approval Path

1. 01/15/26 5:10 pm  
John Singler  
(singlerj): Approved for RMATHEMA Chair
2. 01/27/26 4:01 pm  
Crystal Wilson  
(wilsoncry): Approved for CCC Secretary
3. 02/04/26 8:15 am  
Crystal Wilson  
(wilsoncry): Rollback to CCC Secretary for RCOMPSCI Chair
4. 02/04/26 9:17 am

Crystal Wilson  
(wilsoncry):  
Approved for CCC  
Secretary

5. 02/12/26 7:34 pm  
Seung-Jong Park  
(spxzb): Approved  
for RCOMPSCI Chair

6. 02/13/26 1:32 pm  
Crystal Wilson  
(wilsoncry):  
Approved for CCC  
Secretary

7. 02/20/26 4:47 pm  
Theresa Swift  
(thswift): Approved  
for Engineering  
DSCC Chair

8. 02/26/26 4:31 pm  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC Chair

9. 03/02/26 12:10 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post

10. 03/23/26 8:22 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

11. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## Program Requirements and Description

## Master of Science

### Data Science

The non-thesis M.S. in Data Science curriculum is designed to give students an interdisciplinary educational experience that provides a solid foundation in computer science, mathematics, and statistics. The curriculum prepares students to solve challenging data-driven problems across a variety of application areas. Students pursuing the non-thesis M.S. in Data Science must select a primary focus area, namely Computational Learning or Statistical Learning. Courses within the focus area provide more advanced discipline-specific content. Students must take a minimum of 12 total credit hours of COMP SCI courses and 12 total hours of STAT or MATH courses. In accordance with campus requirements, this M.S. non-thesis degree requires a minimum of thirty hours of graduate credit. The plan of study must include a minimum of twenty-four credit hours of 4000-, 5000-, and 6000- level lecture courses (1000/2000-level courses cannot be included). A minimum of nine credit hours of the required coursework must come from the group of 6000-level lecture courses. Additionally, no credit hours of graduate research may be applied toward the plan of study.

#### Required courses:

<a href="#"><u>COMP SCI 5206</u></a>	Probability and Its Applications in Computing	3
or <a href="#"><u>STAT 5643</u></a>	Probability And Statistics	
<a href="#"><u>COMP SCI 5420</u></a>	Introduction to Machine Learning	3
or <a href="#"><u>MATH 5680</u></a>	Mathematics of Machine Learning	
<a href="#"><u>COMP SCI 5400</u></a>	Introduction To Artificial Intelligence	3
<a href="#"><u>COMP SCI 5480</u></a>	Deep Learning	3
<a href="#"><u>STAT 5346</u></a>	Regression Analysis	3
or <a href="#"><u>COMP SCI 5204</u></a>	Regression Analysis	
<a href="#"><u>STAT 5364</u></a>	Causal Data Science	3
Primary focus area electives		6
Secondary focus area elective		3
Additional elective <sup>1</sup>		3

1

The additional elective can be chosen from the primary focus area, the secondary focus area, or the additional course options

### Computational Learning Focus Area Electives

<a href="#"><u>COMP SCI 5402</u></a>	Introduction to Data Mining	3
<a href="#"><u>COMP SCI 5409</u></a>	Applied Social Network Analysis	3
<a href="#"><u>COMP SCI 5411</u></a>	Natural Language Processing	3
<a href="#"><u>COMP SCI 5480</u></a>	Deep Learning	3
<a href="#"><u>COMP SCI 5700</u></a>	Bioinformatics	3
<a href="#"><u>COMP SCI 6202</u></a>	Markov Decision Processes	3
<a href="#"><u>COMP SCI 6400</u></a>	Advanced Topics In Artificial Intelligence	3
<a href="#"><u>COMP SCI 6401</u></a>	Advanced Evolutionary Computing	3
<a href="#"><u>COMP SCI 6402</u></a>	Advanced Topics in Data Mining	3
<a href="#"><u>COMP SCI 6406</u></a>	Machine Learning in Computer Vision	3
<a href="#"><u>COMP SCI 6407</u></a>	Internet of Things with Data Science	3

### Statistical Learning Focus Area Electives

<a href="#"><u>STAT 5210</u></a>	Statistical Data Analysis Using R	3
<a href="#"><u>STAT 5270</u></a>	Foundations of Statistical Learning	3
<a href="#"><u>STAT 5290</u></a>	Computational Bayesian Methods using Python	3
<a href="#"><u>STAT 5353</u></a>	Statistical Data Analysis	3
<a href="#"><u>STAT 5814</u></a>	Applied Time Series Analysis	3
<a href="#"><u>STAT 6239</u></a>	Clustering Algorithms	3
<a href="#"><u>STAT 6342</u></a>	Categorical Data Analysis	3
<a href="#"><u>STAT 6343</u></a>	Nonparametric Statistical Methods	3
<a href="#"><u>STAT 6344</u></a>	Design And Analysis Of Experiments	3
<a href="#"><u>STAT 6545</u></a>	Multivariate Statistical Methods	3

### Additional Course Options

<a href="#"><u>COMP ENG 5310</u></a>	Computational Intelligence	
<a href="#"><u>COMP SCI 5200</u></a>	Analysis Of Algorithms	3
<a href="#"><u>COMP SCI 5201</u></a>	Object-Oriented Numerical Modeling I	3
<a href="#"><u>COMP SCI 5408</u></a>	Game Theory for Computing	3
<a href="#"><u>COMP SCI 5802</u></a>	Introduction to Parallel Programming and Algorithms	3

<a href="#"><u>COMP SCI 6204</u></a>	Applied Graph Theory for Computer Science	3
<a href="#"><u>COMP SCI 6304</u></a>	Cloud Computing and Big Data Management	3
<a href="#"><u>COMP SCI 6601</u></a>	Privacy Preserving Data Integration and Analysis	3
<a href="#"><u>ECON 5360</u></a>	Data Driven Strategic Insights	3
<a href="#"><u>ECON 5380</u></a>	Data Intelligence using Case Studies	3
<a href="#"><u>ENG MGT 5414</u></a>	Introduction To Operations Research	3
<a href="#"><u>ENG MGT 6412</u></a>	Mathematical Programming	3
<a href="#"><u>ENG MGT 6415</u></a>	Optimization under Uncertainty	3
<a href="#"><u>IS&amp;T 5420</u></a>	Business Analytics and Data Science	3
<a href="#"><u>MATH 5601</u></a>	Introduction to Numerical Analysis	3
<a href="#"><u>MATH 5670</u></a>	Scientific Programming with Python	3
<a href="#"><u>MATH 5762</u></a>	Marketing Revolution with Machine Learning	3
<a href="#"><u>MATH 6490</u></a>	Nonlinear Optimization in Machine Learning	3
<a href="#"><u>STAT 5644</u></a>	Mathematical Statistics	3
<a href="#"><u>STAT 6553</u></a>	Linear Statistical Models I	3
<a href="#"><u>STAT 6841</u></a>	Stochastic Processes	3
<a href="#"><u>SYS ENG 5212</u></a>	Introduction to Neural Networks and Applications	3
<a href="#"><u>SYS ENG 6102</u></a>	Information Based Design	3
<a href="#"><u>SYS ENG 6213</u></a>	Deep Learning	3
<a href="#"><u>SYS ENG 6215</u></a>	Adaptive Dynamic Programming	3

Justification for  
request

The Departments of Computer Science and Mathematics & Statistics at Missouri University of Science and Technology (Missouri S&T) jointly propose a Master of Science (M.S.) in Data Science. This interdisciplinary program responds to the growing and well-documented demand for data science expertise both statewide in Missouri and nationally. Rooted in the university's STEM-focused strengths, the program emphasizes a well-rounded interdisciplinary curriculum that combines a strong foundation in computer science, mathematics, and statistics with the practical application of data science methods to real-world problems.

The M.S. in Data Science is a 30-credit, non-thesis degree available in both in-person and online

formats. All students will complete 18 credit hours of core coursework in areas such as machine learning, probability and statistics, deep learning, regression analysis, causal inference, and artificial intelligence. Students will select one of two focus areas—Computational Learning or Statistical Learning—which primarily serve to define a home department and allow for modest specialization. Elective credits give students the flexibility to tailor their studies to individual interests and career goals, drawing from interdisciplinary offerings across campus.

The program’s structure ensures that graduates are not only proficient in applying analytical tools but also possess a deep understanding of their theoretical foundations. This will enable them to evaluate limitations of existing methods and develop innovative solutions to complex problems. This educational approach addresses the increasing demand for professionals who can integrate knowledge across disciplines and adapt to the fast-evolving landscape of artificial intelligence and machine learning. There is strong employer and student demand for such training. Current course enrollments, industry feedback, and job market trends all point to a growing need for graduates who can think critically, work with large and complex datasets, and adapt tools to novel and challenging problems. The program’s emphasis on project-based learning ensures students gain hands-on experience that prepares them for roles across a variety of sectors, including technology, healthcare, finance and manufacturing.

Economically, the program initially leverages existing faculty and infrastructure, ensuring a cost-effective launch and strong potential for sustainability. It is designed to attract STEM-oriented students who are already drawn to the university’s applied science and engineering reputation. Additionally, by offering online coursework, the program broadens its reach and impact, serving students across Missouri and beyond. With Missouri S&T ranked #3 among the top public institutions nationwide for career placement, the program is well-positioned to attract high-caliber students seeking career advancement.

Ultimately, the proposed M.S. in Data Science enhances the university’s academic portfolio, aligns with strategic and enrollment goals, and addresses Missouri’s workforce development needs. It complements existing programs, broadens access to high-demand training, and equips graduates with skills and knowledge needed to lead in the data-driven economy of the future.

Attach Budget [Budget -- MS in Data Science.docx](#)

System Approval  
Letter

MDHE Approval [MDHE Approval Letter\\_S&T\\_December 2025.pdf](#)

Supporting  
Documents [MS Data Science Curriculum.docx](#)

Reviewer

## Comments

**Crystal Wilson (wilsoncry) (01/16/26 12:10 pm):** Added PROPOSED to the program code and MS to the title.

**Crystal Wilson (wilsoncry) (01/27/26 3:55 pm):** With department approval, I added CS 5411 to the DC form as this was in the supporting documents, but not on the DC; I also added the graduate campus requirements.

**Crystal Wilson (wilsoncry) (02/04/26 8:15 am):** Rollback: Rollback to CCC Secretary. Per Dr. Raper, Data Science will only go through the math department and sciences DSCC. Removing comp sci chair and engineering DSCC.

**Crystal Wilson (wilsoncry) (02/04/26 8:20 am):** Added Master of Science Data Science heading to the DC form.

**Hannah Johnson (hjh9x) (02/12/26 1:18 pm):** Per an email from Dr. Raper and Dr. Park (Feb 12, 2026) I removed CS 5401 Evolutionary Computing and added CS 5480 Deep Learning in the computational learning focus area electives section.

# Program Change Request

## New Program Proposal

Date Submitted: 02/10/26 10:32 pm

Viewing: **PROPOSED : Disaster Management CT**

Last edit: 02/11/26 4:21 pm

Changes proposed by: Katie Shannon (shannonk)

Effective Catalog	FS2026-SP2027
Edition	
Start Term	Fall 2026
Program Type	Certificate
CIM Prospectus	
Academic Level	Graduate
Program Code	PROPOSED
Department	Biological Sciences
Discipline	Environmental Sciences
Offered by	
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

### Approval Path

1. 02/11/26 9:18 am  
Gina Yosten  
(gyxmr): Approved for RBIOLSCI Chair
2. 02/11/26 3:27 pm  
Hannah Johnson  
(hjh9x): Approved for CCC Secretary
3. 02/26/26 4:32 pm  
Katie Shannon  
(shannonk): Approved for Sciences DSCC Chair
4. 03/02/26 12:10 pm  
Hannah Johnson  
(hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:22 am  
Hannah Johnson  
(hjh9x): Approved

for CCC Meeting  
Agenda  
6. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## Disaster Management CT

CIP Code                    43.0302 - Crisis/Emergency/Disaster  
Management.

### Purpose

The purpose of the Graduate Certificate in Disaster Management is to develop knowledgeable, skilled professionals who can effectively address the growing challenges posed by natural, technological, and human-caused disasters. The program is designed to enhance students' abilities to assess vulnerabilities, design and implement emergency plans, coordinate response operations, and support long-term recovery efforts. The certificate prepares graduates to lead and collaborate across sectors, strengthen organizational readiness, and advance community resilience at local, national, and global levels.

### Intended Audience

Distance (online) Students  
Main Campus Students

### Program-Specific

#### Admission

The Graduate Certificate in Disaster Management is open to all persons holding a B.S degree or are currently accepted into a graduate degree program at Missouri S&T. Once admitted to the program, the student must take the four designated courses (provided in the curriculum section). To receive a Graduate Certificate, the student must have an average cumulative grade point of 3.0 or better in the certificate courses. Once admitted to the program, a student will be given six years to complete the program.

Students admitted to the Disaster Management Graduate Certificate Program will have non-degree graduate status; however, they will earn graduate credit for the course they complete. Students who do not have all the prerequisite courses necessary to begin the courses in the Disaster Management Graduate Certificate Program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

#### GATEWAY FOR ADMISSION TO MASTER'S DEGREE

If the student completes the four-course sequence with a grade of B or better in each of the courses taken, they, upon application, will be admitted to the M.S. degree program in Biology. The certificate credits taken by the

students admitted to the Biology M.S. degree program will count towards their master's degrees.

## Program Requirements and Description

# Disaster Management Certificate

This certificate provides advanced and practice-focused training for professionals who are seeking to strengthen their capacity to prepare for, respond to, and recover from emergencies and disasters. Grounded in evidence-based approaches and interdisciplinary perspectives, the program equips students with essential skills in risk assessment, disaster planning, security, and community resilience. Designed for working professionals in public safety, government, non-profit, and humanitarian sectors, the certificate offers a flexible curriculum that prepares graduates to emerge prepared to navigate multidimensional disaster environments, coordinate multi-agency responses, and strengthen community resilience.

### Required Courses:

<a href="#"><u>ENG MGT 5312</u></a>	Advanced Risk Assessment and Reduction	3
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<a href="#"><u>ENV SCI 6667</u></a>	Disaster Management in Changing Climates	3
-------------------------------------	--	---

### Choose two courses from the following:

<a href="#"><u>ENG MGT 5316</u></a>	Safety Engineering Management	3
-------------------------------------	-------------------------------	---

<a href="#"><u>GEO ENG 4321</u></a>	Drone Mapping and Photogrammetry	3
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<a href="#"><u>GEO ENG 5144</u></a>	Remote Sensing Technology	3
-------------------------------------	---------------------------	---

<a href="#"><u>GEO ENG 6146</u></a>	Advanced Remote Sensing And Image Processing	3
-------------------------------------	--	---

<a href="#"><u>POL SCI 4500</u></a>	Geopolitics and International Security	3
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<a href="#"><u>PSYCH 5710</u></a>	Advanced Human Factors	3
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### Justification for request

The purpose of the Graduate Certificate in Disaster Management is to develop knowledgeable, skilled professionals who can effectively address the growing challenges posed by natural, technological, and human-caused disasters. The program is designed to enhance students' abilities to assess vulnerabilities, design and implement emergency plans, coordinate response operations, and support long-term recovery efforts. The certificate prepares graduates to lead and collaborate across sectors, strengthen organizational readiness, and advance community resilience at local, national, and global levels.

Attach Budget

System Approval

Letter

MDHE Approval

Supporting [Signed Grad Cert Disaster Mangagement.pdf](#)  
Documents

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/11/26 3:27 pm):** Added proposed to program code. Added CT to the title of the certificate. Added heading of the title of the certificate to the program prerequisites and descriptions. Alphabetized the course listings in both sections.

**Hannah Johnson (hjh9x) (02/11/26 4:21 pm):** Edited to combine the two tables under Course List to one cohesive table including all the listed information.

# Program Change Request

## New Program Proposal

Date Submitted: 02/23/26 4:15 pm

Viewing: **PROPOSED : Environmental Conservation CT**

Last edit: 03/24/26 1:40 pm

Changes proposed by: Katie Shannon (shannonk)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Certificate
CIM Prospectus	
Academic Level	Graduate
Program Code	PROPOSED
Department	Biological Sciences
Discipline	Environmental Sciences
Offered by	
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

### Approval Path

1. 02/09/26 4:12 pm  
Gina Yosten  
(gyxmr): Approved for RBIOLSCI Chair
2. 02/10/26 10:05 am  
Hannah Johnson  
(hjh9x): Rollback to Initiator
3. 02/11/26 9:18 am  
Gina Yosten  
(gyxmr): Approved for RBIOLSCI Chair
4. 02/11/26 4:09 pm  
Hannah Johnson  
(hjh9x): Rollback to Initiator
5. 02/11/26 4:43 pm  
Gina Yosten  
(gyxmr): Approved for RBIOLSCI Chair
6. 02/13/26 3:18 pm

Hannah Johnson  
(hjh9x): Rollback to  
Initiator

7. 02/24/26 1:43 pm  
Gina Yosten

(gyxmr): Approved  
for RBIOLSCI Chair

8. 02/26/26 9:11 am  
Hannah Johnson

(hjh9x): Approved  
for CCC Secretary

9. 02/26/26 4:32 pm  
Katie Shannon

(shannonk):  
Approved for  
Sciences DSCC Chair

10. 03/02/26 12:10 pm

Hannah Johnson  
(hjh9x): Approved

for Pending CCC  
Agenda post

11. 03/23/26 8:22 am

Hannah Johnson  
(hjh9x): Approved

for CCC Meeting  
Agenda

12. 03/23/26 12:02 pm

Cecil Eng Huang  
Chua (cchua):

Approved for  
Campus Curricula  
Committee Chair

Environmental Conservation CT

CIP Code 26.1307 - Conservation Biology.

#### Purpose

The Certificate in Environmental Conservation provides advanced, interdisciplinary training for students and professionals seeking to understand ecological systems and apply science-based approaches to environmental stewardship. The program emphasizes core ecological principles, ecosystem dynamics, biodiversity conservation, and the management challenges posed by

climate change, land-use pressures, and human impacts on natural resources. Through applied coursework and analytical skill development, students learn to evaluate ecological data, assess environmental conditions, and design effective management strategies that support sustainable ecosystems. This certificate is ideal for individuals working in environmental consulting, conservation, natural resource management, public agencies, and nonprofit organizations who wish to enhance their ecological expertise and strengthen their ability to make informed, responsible environmental decisions.

#### Intended Audience

Distance (online) Students

Main Campus Students

#### Program-Specific

Admission

The Environmental Conservation Graduate Certificate is open to all persons holding a B.S degree or are currently accepted into a graduate degree program at Missouri S&T. Once admitted to the program, the student must take the four designated courses (provided in the curriculum section). To receive a Graduate Certificate, the student must have an average cumulative grade point of 3.0 or better in the certificate courses. Once admitted to the program, a student will be given six years to complete the program.

Students admitted to the Environmental Conservation Graduate Certificate Program will have non-degree graduate status; however, they will earn graduate credit for the course they complete. Students who do not have all of the prerequisite courses necessary to begin the courses in the Environmental Conservation Graduate Certificate Program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

#### **GATEWAY FOR ADMISSION TO MASTER'S DEGREE**

If the student completes the four-course sequence with a grade of B or better in each of the courses taken, they, upon application, will be admitted to the M.S. degree program in Biology. The certificate credits taken by the students admitted to the M.S. degree program will count towards their master's degrees.

#### Program Requirements and Description

## Environmental Conservation Certificate

Students in this program will take a minimum of 12 credit hours to include:

One required course:

<a href="#">ENV SCI 6560</a>	Environmental Ecology and Management	3
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Requires three of the following courses, at least one of which must be from GEOLOGY or GEO ENG and at least one of which must be from BIO SCI.

<a href="#">BIO SCI 5423</a>	Advanced Biodiversity	3
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<a href="#"><u>BIO SCI 5443</u></a>	Population and Conservation Genetics	3
<a href="#"><u>BIO SCI 5453</u></a>	Forest Insect Diversity & Ecology	2
<a href="#"><u>BIO SCI 5523</u></a>	Ichthyology	3
<a href="#"><u>BIO SCI 6313</u></a>	Environmental Microbiology	3
<a href="#"><u>BIO SCI 6363</u></a>	Advanced Freshwater Ecology	3
<a href="#"><u>BIO SCI 6463</u></a>	Bioremediation	3
<a href="#"><u>BIO SCI 6563</u></a>	Advanced Global Ecology	3
<a href="#"><u>CHEM 5710</u></a>	Environmental Chemistry	3
<a href="#"><u>ENV ENG 5635</u></a>	Phytoremediation and Natural Treatment Systems: Science and Design	3
<a href="#"><u>ENV ENG 5640</u></a>	Environmental Law And Regulations	3
<a href="#"><u>ENV ENG 5642</u></a>	Sustainability, Population, Energy, Water, and Materials	3
<a href="#"><u>ENV SCI 5779</u></a>	Environmental Safety	3
<a href="#"><u>ENV SCI 6667</u></a>	Disaster Management in Changing Climates	3
<a href="#"><u>GEOLOGY 4321</u></a>	Drone Mapping and Photogrammetry	3
<a href="#"><u>GEOLOGY 5111</u></a>	Advanced Physical Geology	3
<a href="#"><u>GEOLOGY 5679</u></a>	Field and Laboratory Studies in Earth Science	3
<a href="#"><u>GEOLOGY 5741</u></a>	Micropaleontology	3
<a href="#"><u>GEOLOGY 6421</u></a>	Environmental Geology	3
<a href="#"><u>GEOLOGY 6541</u></a>	Geology of Natural Resources	3
<a href="#"><u>GEOLOGY 6611</u></a>	Advanced Palynology	3
<a href="#"><u>GEOLOGY 6711</u></a>	Advanced Paleoclimatology and Paleoecology	3
<a href="#"><u>GEO ENG 5144</u></a>	Remote Sensing Technology	3
<a href="#"><u>GEO ENG 5276</u></a>	Sustainability in Mining	3
<a href="#"><u>GEO ENG 5331</u></a>	Subsurface Hydrology	3
<a href="#"><u>GEO ENG 5332</u></a>	Fundamentals of Groundwater Hydrology	3
<a href="#"><u>GEO ENG 6146</u></a>	Advanced Remote Sensing And Image Processing	3
<a href="#"><u>STAT 5260</u></a>	Statistical Data Analysis Using SAS	3
<a href="#"><u>STAT 5290</u></a>	Computational Bayesian Methods using Python	3

<a href="#">STAT 5346</a>	Regression Analysis	3
<a href="#">STAT 5353</a>	Statistical Data Analysis	3

Justification for request

This certificate expands opportunities for students to pursue life sciences education focused on environmental, sustainability and conservation initiatives, a growing area of national attention and need.

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents [Environmental Conservation CT signed.pdf](#)

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/10/26 10:05 am):** Rollback: Rolled back because the attached documents are for a Graduate Certificate in Disaster Management, and not for a Graduate Certificate in Environmental Conservation.

**Hannah Johnson (hjh9x) (02/11/26 4:09 pm):** Rollback: Rolled back because the attached documents are for the Disaster Management CT program and not for the Environmental Conservation CT program. Course listings must be formatted in a Course List.

**Hannah Johnson (hjh9x) (02/12/26 8:11 am):** Change program code to PROPOSED. Change the Course List to include the two tables as on cohesive table. I changed the course requirement listed as GEO, to its correct title: GEOLOGY in the heading that says "... at least one must be from GEOLOGY or GEO ENG...". Added a heading in the Course List that says Environmental Conservation Certificate. Changed the title to the correct formatting of: Environmental Conservation CT.

**Hannah Johnson (hjh9x) (02/13/26 3:18 pm):** Rollback: Rolling back because the CIP Code on the form do not match the CIP Code listed on the CIM form. And because the title of the CT is listed incorrectly in the purpose section of the form, and throughout the supporting documents.

**Hannah Johnson (hjh9x) (02/24/26 2:22 pm):** Attached correct supporting documents with updated CIP Code.

**Hannah Johnson (hjh9x) (03/24/26 1:40 pm):** Added BIO SCI 5453 to course list per email from Katie Shannon to align with the supporting documents.

# Program Change Request

## New Program Proposal

Date Submitted: 02/10/26 9:38 pm

Viewing: **PROPOSED : Environmental Health & Safety CT**

Last edit: 02/11/26 3:58 pm

Changes proposed by: Katie Shannon (shannonk)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Certificate
CIM Prospectus	
Academic Level	Graduate
Program Code	PROPOSED
Department	Biological Sciences
Discipline	Environmental Sciences
Offered by	
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

### Approval Path

1. 02/11/26 9:18 am  
Gina Yosten (gyxmr): Approved for RBIOLSCI Chair
2. 02/11/26 4:00 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/26/26 4:33 pm  
Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 03/02/26 12:10 pm  
Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:22 am  
Hannah Johnson (hjh9x): Approved

for CCC Meeting  
Agenda  
6. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## Environmental Health & Safety CT

CIP Code                      51.2202 - Environmental Health.

### Purpose

The purpose of the Graduate Certificate in Environmental Health & Safety is to prepare professionals with the advanced knowledge and practical skills needed to identify, assess, and mitigate environmental and occupational hazards that affect human health and organizational performance. Grounded in scientific principles and current regulatory standards, the program aims to develop competent practitioners who can evaluate risk, ensure regulatory compliance, promote safe work environments, and contribute to sustainable environmental stewardship.

Through rigorous, applied learning experiences, the certificate supports individuals seeking to strengthen their expertise, enhance their career opportunities, or serve as effective leaders in industry, government, public health, and related fields. The program also provides a pathway for continued graduate study in environmental health, occupational safety, or allied disciplines.

Graduates of the certificate will be able to evaluate environmental and occupational hazards using established scientific and regulatory methods, conduct basic exposure assessments and apply principles of industrial hygiene and environmental health science, and interpret key laws, regulations, and standards governing environmental protection and workplace safety.

### Intended Audience

Distance (online) Students  
Main Campus Students

### Program-Specific

#### Admission

The Graduate Certificate in Environmental Health & Safety is open to all persons holding a B.S. in Biology, Environmental Science, Environmental Engineering, Engineering Management, or a related or are currently accepted into a graduate degree program at Missouri S&T. Once admitted to the program, the student must take the four designated courses (provided in the curriculum section). To receive a Graduate Certificate, the student must have an average cumulative grade point of 3.0 or better in the certificate courses. Once admitted to the

program, a student will be given six years to complete the program.

Students admitted to the Environmental Health & Safety Graduate Certificate Program will have non-degree graduate status; however, they will earn graduate credit for the course they complete. Students who do not have all the prerequisite courses necessary to begin the courses in the Environmental Health & Safety Graduate Certificate Program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

#### GATEWAY FOR ADMISSION TO MASTER'S DEGREE

If the student completes the four-course sequence with a grade of B or better in each of the courses taken, they, upon application, will be admitted to the M.S. degree program in Biological Sciences. The certificate credits taken by the students admitted to the M.S. degree program will count towards their master's degrees.

#### Program Requirements and Description

## Environmental Health & Safety Certificate

#### Required Course:

<a href="#"><u>PSYCH 5740</u></a>	Occupational Health and Safety	3
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#### Choose one course from the following:

<a href="#"><u>ENG MGT 5312</u></a>	Advanced Risk Assessment and Reduction	3
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<a href="#"><u>ENG MGT 5316</u></a>	Safety Engineering Management	3
-------------------------------------	-------------------------------	---

<a href="#"><u>ENV ENG 5640</u></a>	Environmental Law And Regulations	3
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<a href="#"><u>PSYCH 5710</u></a>	Advanced Human Factors	3
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#### Choose at least two courses from the following:

<a href="#"><u>BIO SCI 6383</u></a>	Advanced Toxicology	3
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<a href="#"><u>ENV ENG 5650</u></a>	Public Health Engineering	3
-------------------------------------	---------------------------	---

<a href="#"><u>ENV ENG 5665</u></a>	Indoor Air Pollution	3
-------------------------------------	----------------------	---

<a href="#"><u>ENV SCI 5779</u></a>	Environmental Safety	3
-------------------------------------	----------------------	---

<a href="#"><u>GEO ENG 5237</u></a>	Geological Aspects Of Hazardous Waste Management	3
-------------------------------------	--	---

<a href="#"><u>NUC ENG 5367</u></a>	Radioactive Waste Management And Remediation	3
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#### Justification for request

The certificate can be completed fully online or in a hybrid format, allowing students to balance professional responsibilities with academic advancement. Upon completion, graduates will be

prepared to contribute meaningfully to EHS leadership roles in industry, government agencies, consulting firms, nonprofit organizations, and healthcare settings—or to continue into a related master’s program.

Attach Budget

System Approval

Letter

MDHE Approval

Supporting Documents [Signed Grad Cert Environmental Health and Safety.pdf](#)

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/11/26 3:40 pm):** Added Proposed in the program code. Added CT to the title. Removed space from CIP code. Added title to the program requirements and description.

**Hannah Johnson (hjh9x) (02/11/26 3:49 pm):** Changed formatting of the listed courses to include the requirements for that section in the table.

**Hannah Johnson (hjh9x) (02/11/26 3:58 pm):** Combined the three tables in the Program Requirements and Description into one cohesive table including all the listed information.

# Program Change Request

## New Program Proposal

Date Submitted: 02/18/26 4:49 pm

Viewing: **PROPOSED : Systems Engineering Minor**

Last edit: 02/20/26 3:30 pm

Changes proposed by: Joan Schuman (schumanj)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Minor
Academic Level	Undergraduate
Program Code	PROPOSED
Department	Engineering Mgt & Sys Engr
Discipline	Systems Engineering
Title	

### In Workflow

1. **RENGMNGT 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

### Approval Path

1. 02/18/26 4:55 pm  
Amaury Lendasse (altmg): Approved for RENG MNGT Chair
2. 02/20/26 3:31 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/22/26 10:17 am  
Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 03/02/26 12:10 pm  
Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:22 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda  
6. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

Systems Engineering Minor

CIP Code 14.2701 - Systems Engineering.

Program Requirements and Description

## Systems Engineering Minor

A student who receives a bachelor of science degree in an accredited engineering program or Computer Science from Missouri S&T may receive a minor in Systems Engineering by completing 15 hours of the courses listed below:

<a href="#"><u>ENG MGT 2310</u></a>	Introduction to System Engineering	3
<a href="#"><u>ENG MGT 3320</u></a>	Introduction to Project Management	3
<a href="#"><u>SYS ENG 5101</u></a>	System Engineering and Analysis	3
<a href="#"><u>SYS ENG 5211</u></a>	Computational Intelligence	3
<a href="#"><u>SYS ENG 5281</u></a>	Introduction to Probabilistic Risk Assessment	3

Justification for  
request

As more organizations realize the need for systems thinking and systems engineering, our minor provides an option for undergraduate students in all engineering or computer science disciplines to advance their knowledge of systems engineering. Also, by offering a minor in systems engineering, students interested in obtaining a master's degree in this area can use some minor classes for the Graduate Track Pathway to obtain an accelerated master's degree.

Attach Budget

System Approval  
Letter

MDHE Approval  
Supporting  
Documents

Reviewer  
Comments

**Hannah Johnson (hjh9x) (02/20/26 3:30 pm):** Added title in the Program requirements and description box.

# Program Change Request

Date Submitted: 02/23/26 2:55 pm

Viewing: **RUSS-MI : Russian Minor**

Last approved: 02/18/14 11:33 am

Last edit: 03/19/26 9:21 am

Changes proposed by: Irina Ivliyeva (ivliyeva)

Catalog Pages Using  
this Program

[Foreign Languages](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	<a href="#">Minor</a>
Academic Level	<a href="#">Undergraduate</a>
Program Code	RUSS-MI
Department	Arts, Languages & Philosophy
Discipline	<a href="#">Russian</a>
Title	

## 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**

## Approval Path

1. 02/22/26 10:45 am  
Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
2. 02/23/26 2:31 pm  
Hannah Johnson (hjh9x): Rollback to Initiator
3. 02/23/26 3:05 pm  
Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
4. 02/23/26 3:51 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 02/27/26 8:26 am  
Alejandra Sobrado (asgx4): Approved for Arts &

Humanities DSCC  
Chair

6. 03/02/26 12:10 pm  
Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post
7. 03/23/26 8:22 am  
Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda
8. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Feb 18, 2014 by  
Irina Ivliyeva  
(ivliyeva)

Russian Minor

CIP Code

Program Requirements and Description

## Russian Minor

A Russian minor will consist of six nine hours beyond the 12 hours B.A. foreign language requirement selected in consultation with a faculty advisor. The additional six nine hours must be at ~~the 2000-level~~ or above the 3000-level, higher, with at least one two of the courses at the 4000-level.

Justification for  
request

The proposed reduction from 21 to 18 credit hours aligns Russian Minor more closely with the campus average of 15 credit hours, ensuring consistency with national trends and institutional

norms, as well as maintaining competitiveness among undergraduate minors. The streamlined curriculum preserves all core learning outcomes and disciplinary rigor while allowing students to complete the minor more efficiently without compromising quality.

The reduction will also allow students greater flexibility in degree planning, making the minor more accessible to students across majors and supporting timely graduation. In addition, optimizing required credits will enable more strategic allocation of faculty teaching capacity, more effective course rotations at the upper level to increase enrollment, freeing up time for development of new curriculum, and addressing emerging interdisciplinary initiatives that strengthen the program's long-term sustainability and responsiveness.

This change was approved by the Modern Languages Section on 02.09.26 and endorsed by the ALP chair.

Attach Budget

System Approval

Letter

MDHE Approval

Supporting

Documents

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/23/26 2:31 pm):** Rollback: Rolled back per request from Irina Ivliyeva.

**Hannah Johnson (hjh9x) (03/19/26 9:21 am):** Edited description/requirements to say 'at or above 3000 level' instead of 'above 2000 level' per Minor policy.

# Program Change Request

Date Submitted: 02/23/26 2:56 pm

Viewing: **SPAN-MI : Spanish Minor**

Last approved: 02/18/14 11:27 am

Last edit: 03/19/26 9:21 am

Changes proposed by: Irina Ivliyeva (ivliyeva)

Catalog Pages Using  
this Program

[Foreign Languages](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	<a href="#">Minor</a>
Academic Level	<a href="#">Undergraduate</a>
Program Code	SPAN-MI
Department	Arts, Languages & Philosophy
Discipline	<a href="#">Spanish</a>
Title	

## 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

## Approval Path

1. 02/22/26 10:45 am  
Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
2. 02/23/26 2:31 pm  
Hannah Johnson (hjh9x): Rollback to Initiator
3. 02/23/26 3:06 pm  
Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
4. 02/23/26 3:51 pm  
Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 02/27/26 8:26 am  
Alejandra Sobrado (asgx4): Approved for Arts &

Humanities DSCC  
Chair

6. 03/02/26 12:10 pm

Hannah Johnson  
(hjh9x): Approved  
for Pending CCC  
Agenda post

7. 03/23/26 8:22 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

8. 03/23/26 12:02 pm

Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

## History

1. Feb 18, 2014 by  
Irina Ivliyeva  
(ivliyeva)

Spanish Minor

CIP Code

Program Requirements and Description

## Spanish Minor

A Spanish minor will consist of six ~~nine~~ hours beyond the 12 hours B.A. foreign language requirement selected in consultation with a faculty advisor. The additional six ~~nine~~ hours must be at ~~the 2000-level~~ or above the 3000-level, ~~higher~~, with at least one ~~two~~ of the courses at the 4000-level.

Justification for  
request

The proposed reduction from 21 to 18 credit hours aligns Spanish Minor more closely with the campus average of 15 credit hours, ensuring consistency with national trends and institutional

norms, as well as maintaining competitiveness among undergraduate minors. The streamlined curriculum preserves all core learning outcomes and disciplinary rigor while allowing students to complete the minor more efficiently without compromising quality.

The reduction will also allow students greater flexibility in degree planning, making the minor more accessible to students across majors and supporting timely graduation. In addition, optimizing required credits will enable more strategic allocation of faculty teaching capacity, more effective course rotations at the upper level to increase enrollment, freeing up time for development of new curriculum, and addressing emerging interdisciplinary initiatives that strengthen the program's long-term sustainability and responsiveness.

This change was approved by the Modern Languages Section on 02.09.26 and endorsed by the ALP chair.

Attach Budget

System Approval

Letter

MDHE Approval

Supporting

Documents

Reviewer

Comments

**Hannah Johnson (hjh9x) (02/23/26 2:31 pm):** Rollback: Rolled back per request from Irina Ivliyeva.

**Hannah Johnson (hjh9x) (03/19/26 9:21 am):** Edited description/requirements to say 'at or above 3000 level' instead of 'above 2000 level' per Minor policy.

# Program Change Request

Date Submitted: 02/02/26 2:51 pm

Viewing: **TCH CM-MIG : Technical**

## Communication Minor

Last approved: 06/10/21 4:08 pm

Last edit: 02/02/26 2:51 pm

Changes proposed by: Crystal Wilson (wilsoncry)

Catalog Pages Using  
this Program

[Technical Communication](#)

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	<a href="#">Minor</a>
Academic Level	<a href="#">Graduate</a>
Program Code	TCH CM-MIG
Department	English & Tech Communication
Discipline	Technical Communication
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. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar

### Approval Path

1. 02/09/26 5:55 pm  
Kathryn Dolan (dolankc): Approved for REGLISH Chair
2. 02/10/26 9:57 am  
Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 02/23/26 10:58 am  
Alejandra Sobrado (asgx4): Approved for Arts & Humanities DSCC Chair
4. 03/02/26 12:10 pm  
Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post
5. 03/23/26 8:22 am

Hannah Johnson  
(hjh9x): Approved  
for CCC Meeting  
Agenda

6. 03/23/26 12:02 pm  
Cecil Eng Huang  
Chua (cchua):  
Approved for  
Campus Curricula  
Committee Chair

### History

1. Apr 23, 2014 by  
Kristine Swenson  
(kswenson)
2. Sep 5, 2014 by  
pantaleoa
3. Jul 24, 2015 by  
pantaleoa
4. Jun 10, 2021 by  
Kristine Swenson  
(kswenson)

Technical Communication Minor

CIP Code

Program Requirements and Description

## Technical Communication Graduate Minor

The technical communication program offers a graduate-level minor that is open to any graduate student. The minor is designed to strengthen the written, oral, and visual communication skills of students majoring in the sciences, engineering, management, information systems, or other fields. The minor will be particularly useful for those students who will pursue the “paper option” thesis or dissertation. The minor will also be beneficial for those students who will make oral or poster presentations at technical conferences, write journal articles, prepare research proposals, design technical web pages, or prepare technical marketing information.

The program requires a minimum of 12 hours of credit (excluding all courses taken for undergraduate credit). A minimum of 6 hours of 4000-level or above courses with the TCH COM designation is required. At least 6 additional hours of technical communication intensive courses are required. The additional courses may come

from courses with the TCH COM designation, the list of approved technical communication intensive courses, and/or technical communication intensive courses from any academic discipline with the approval of the minor advisor and the English and technical communication department.

Students can elect to pursue this minor at any point during their graduate studies by submitting the Application for a Designated Graduate Minor form (available at <http://registrar.mst.edu/media/administrative/registrar/documents/gradminorapp.pdf>) to the English and technical communication department. Upon application, each student will be assigned a minor advisor who will work with the student to develop a proposed list of courses to fulfill the program requirements.

## Approved Technical Communication Intensive Courses

All TCH COM courses, 4000-level and above		
<a href="#"><u>BIO SCI 6313</u></a>	Environmental Microbiology	3
<a href="#"><u>BUS 5111</u></a>	Business Negotiations	3
<a href="#"><u>ENGLISH 2410</u></a>	Theory Of Written Communication	3
<a href="#"><u>ENGLISH 5571</u></a>	Advanced Writing For Science & Engineering	3
<a href="#"><u>GEO ENG 5092</u></a>	<del>International Engineering and Design</del>	<del>3</del>
<a href="#"><u>IS&amp;T 6887</u></a>	Research Methods in Business and IS&T	3
<a href="#"><u>MATH 3109</u></a>	Foundations Of Mathematics	3
<a href="#"><u>MATH 5603</u></a>	Methods of Applied Mathematics	3
<a href="#"><u>MATH 5108</u></a>	Linear Algebra II	3
<a href="#"><u>MATH 5154</u></a>	Mathematical Logic I	3
<a href="#"><u>MS&amp;E 6120</u></a>	Thermodynamics and Phase Equilibria	3

The technical Communication Graduate Minor Advisory Committee will evaluate other courses, upon the request of students or faculty, for inclusion on the approved list or on a case-by-case basis for individual programs.

Justification for request

With department approval, removed GEO ENG 5092 from the DC form because it is being inactivated.

Attach Budget

System Approval Letter

MDHE Approval

Supporting  
Documents

Reviewer  
Comments