Campus Curricula Committee Meeting Agenda

March 17, 2026
8:15am - 9:30am, Fulton Hall 120
(For Faculty Senate Meeting of April 16, 2026)

Review of submitted 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

Review of submitted 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: 123 PRE-MED-MI : Pre-Medicine 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

Review of submitted Experimental Course forms:
None.

New Business:

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:

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 (RCHEMENG)

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

Catalog Description

for Pending CCC Agenda post

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

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

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Key: 5024

Preview Bridge

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

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

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

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

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
Laboratory	1

Total: 4

Required for Majors: No

Elective for Majors: Yes ~~No~~

Communication Intensive: No

Communication Emphasized: No

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

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.

Key: 2315

Preview Bridge

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 Chemistry ~~Monitoring~~
Abbreviated Course Title	Environmental Chemistry ~~Monitoring~~
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

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 monitoringmethodologies.Discussion covers thermodynamic and kinetic processes that affect chemical transport and fate in theenvironment.Federal environmental regulations and remediation technologies are also covered with specificexamples.~~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
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Communication Intensive: No

Communication Emphasized: No

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.

Key: 5773

Preview Bridge

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

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

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

Abbreviated Course Title	Process Operations
Co-Listed Course	

for Pending CCC Agenda post

Catalog Description

History

1. May 24, 2016 by Daniel Forciniti (forcinit)
2. Jun 25, 2018 by Daniel Forciniti (forcinit)
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 Intensive	No
Communication	No

Emphasized

Grading Basis Graded

Repeatable No

Justification

Updated to reflect the current content of the course.

Semesters Previously Offered

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

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

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors Yes

Elective for Majors No

Communication Intensive	No
Communication Emphasized	No
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

Key: 4285

Preview Bridge

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 Title Process Control

Co-Listed Course

for Pending CCC Agenda post

History

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

Catalog Description

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 No

Communication Emphasized No

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

Key: 2072

Preview Bridge

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

History

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

Key: 4284

Preview Bridge

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

for Pending CCC Agenda post

Catalog Description

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: No

Communication Emphasized: No

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

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 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

Key: 797

Preview Bridge

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

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 invitedspeakers.~~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: No

Communication Emphasized: Yes

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

Key: 60

Preview Bridge

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)

for Pending CCC Agenda post

Catalog Description

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 ofsurfactants.~~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: No

Communication Emphasized: No

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

Key: 1782

Preview Bridge

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

for Pending CCC Agenda post

Catalog Description

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: No

Communication Emphasized: No

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

Key: 1970

Preview Bridge

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

for Pending CCC Agenda post

Abbreviated Course Title: Iso and Purif of Biolog

Co-Listed Course:

History

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

Catalog Description

Isolation and purification of biologicals with emphasis on biopharmaceuticals. Principles and applications of chromatography, lyophilization, and product formulation. Use of ultrafiltration and diafiltration in the processing of protein products. Disposable technology. 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 Intensive: No

Communication Emphasized: No

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

Key: 4290

Preview Bridge

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

History

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

Major themes: hazard identification ~~indentification~~ 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

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: No

Communication Emphasized: No

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

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
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Communication Intensive: No

Communication Emphasized: No

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

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
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

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 out 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.

Key: 4993

Preview Bridge

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

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):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Communication Intensive: No

Communication Emphasized: No

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

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

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-thesisM.S.degree candidates take a comprehensive written**~~

~~finalexamination.~~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 Documents

Program Change (PC) Form 032024 emphasis area STEM 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

Business and Management Systems

Information Science and Technology

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Minor
Academic Level	Undergraduate
Program Code	AI-MI
Department	Business and Information Tech
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

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:

BUS 5730	Machine Learning and Artificial Intelligence for Business	3
IS&T 3420	Introduction to Data Science and Management	3
IS&T 5520	Data Science and Machine Learning with Python	3
And two courses from the following list:		6
BUS 5920	Artificial Intelligence: Law, Governance, and Policy	

ERP 5410	Use of Business Intelligence
IS&T 3333	Data Networks and Information Security
IS&T 3343	Systems Analysis
IS&T 5420	Business Analytics and Data Science
IS&T 5450	Introduction to Information Visualization
IS&T 5535	Machine Learning Algorithms and Applications
STAT 1115	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.

Key: 253

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	Certificate
Academic Level	Undergraduate
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

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-Specifi

Admission

Program Requirements and Description

Automation Engineering Certificate

An undergraduate certificate in Automation Engineering will require the following:

Required courses:		
ELEC ENG 3340	Basic Programmable Logic Controllers (must pass with a "C" or better)	3
Pass one of the following courses with a "C" or better:		
ELEC ENG 3320	Control Systems	3
MECH ENG 4479	Automatic Control Of Dynamic Systems	3

CHEM ENG 4110	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)		
~~CHEM ENG 4140~~	~~Chemical Process Safety~~	~~3~~
CHEM ENG 4241	Process Safety in the Chemical and Biochemical Industries	3
MECH ENG 5479	Machine Learning for Manufacturing Automation	3
ELEC ENG 5355	Process Control System Safety, Security and Alarms	3
CHEM ENG 4310	Interdisciplinary Problems In Manufacturing Automation	3
or MECH ENG 5644	Interdisciplinary Problems In Manufacturing Automation	
CHEM ENG 5190	Plantwide Process Control	3
or ELEC ENG 5350	Plantwide Process Control	
CHEM ENG 5355	Process Control System Safety, Security and Alarms	3
or ELEC ENG 5355	Process Control System Safety, Security and Alarms	
ELEC ENG 4380	Practicum in Automation Engineering (no more than one can be applied to the Automation Engineering Minor)	3
ELEC ENG 5340	Advanced PLC	3
ELEC ENG 5345	PLC Motion Control	3
ELEC ENG 5870	Mechatronics	3
or MECH ENG 5478	Mechatronics	
MECH ENG 5420	Signal Processing for Instrumentation and Control	3
MECH ENG 5449	Robotic Manipulators and Mechanisms	3
MECH ENG 5655	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 Documents: UG Certificate Automation Engr 2021.pdf

Reviewer Comments

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

Key: 254

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	Minor
Academic Level	Undergraduate
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

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

Key: 230

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: 02/20/26 3:51 pm

Changes proposed by: Christi Luks (luksc)

Catalog Pages Using this Program

Chemical & Biochemical Engineering

Rationale for Supporting

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

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

Intended Audience

Program-Specific Admission

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
CHEM 1100	1	CHEM 1320	3
CHEM 1310	4	COMP SCI 1500	3
CHEM 1319	1	OR	
ENGLISH 1120	3	COMP SCI 1972 & COMP SCI 1982	
FR ENG 1100	1	MATH 1215	4
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	MECH ENG 1720	3
MATH 1214 or 1211[6]	4	PHYSICS 1135	4
	17		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
CHEM ENG 2100[1]	4	CHEM ENG 2110[1]	3
CHEM 2210	3	Gen.Ed. Elective[2]	3
MATH 2222	4	MATH 3304	3
PHYSICS 2135	4	Science Elective[4]	4
		STAT 3113	3
	15		16

Junior Year

First Semester	Credits	Second Semester	Credits
CHEM ENG 3101	4	CHEM ENG 3131	3
CHEM ENG 3111	3	CHEM ENG 3141	3
CHEM ENG 3120[1]	3	CHEM ENG 3150	3
Gen.Ed. Elective[2]	3	ENGLISH 3560[3]	3
Gen.Ed. Elective[2]	3	SP&M S 1185[3]	3
	16		15

Senior Year[3]

First Semester	Credits	Second Semester	Credits
CHEM ENG 4091	3	CHEM ENG 4097	3
CHEM ENG 4101	3	CHEM ENG 4130	3

CHEM ENG 4110	3	CHEM ENG 4311	1
CHEM ENG 4241	3	CHEM ENG 5XXX-Chem Eng Elective[5]	3
CHEM ENG 4301	1	CHEM ENG 5XXX-Chem Eng Elective[5]	3
CHEM ENG 5XXX-Chem Eng Elective[5]	3	CHEM ENG 5XXX-Chem Eng Elective[5]	3
	16		16

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
FR ENG 1100	1	MECH ENG 1720	3
CHEM 1310	4	COMP SCI 1500	3
CHEM 1319	1	OR	
ENGLISH 1120	3	COMP SCI 1972 & COMP SCI 1982	
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	CHEM 1320	3
MATH 1214 or 1211[5]	4	MATH 1215[5]	4

CHEM 1100	1	PHYSICS 1135	4
	17		17
Sophomore Year			
First Semester	Credits	Second Semester	Credits
CHEM ENG 2100[1]	4	CHEM ENG 2110[1]	3
CHEM 2210	3	STAT 3113 or 3425	3-4
MATH 2222	4	Science Elective[4]	4
PHYSICS 2135	4	MATH 3304	3
		Gen.Ed. Elective[2]	3
	15		16-17
Junior Year			
First Semester	Credits	Second Semester	Credits
CHEM ENG 3101	4	CHEM ENG 3131	3
CHEM ENG 3111	3	CHEM ENG 3141	3
CHEM ENG 3120[1]	3	CHEM ENG 3150	3
SP&M S 1185[3]	3	ENGLISH 3560[3]	3
Science Elective[4]	4	~~CHEM ENG 5250~~	~~3~~
		Science Elective[4]	4
	17		16
Senior Year[3]			
First Semester	Credits	Second Semester	Credits
CHEM ENG 4091	3	CHEM ENG 4097[2]	3
CHEM ENG 4110	3	CHEM ENG 4210	3
CHEM ENG 4201	3	CHEM ENG 4220	3
~~CHEM ENG 4210~~	~~3~~	CHEM ENG 4241	3
CHEM ENG 4301	1	CHEM ENG 4311 or BME 5311	1
CHEM ENG 5250	3	~~Science Elective[4]~~	~~4~~
Gen.Ed. Elective[2]	3	Gen.Ed. Elective[2]	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.

Key: 150

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: 02/24/26 8:54 am

Changes proposed by: Thomas Schuman (tschuman)

Catalog Pages Using this Program

Chemistry

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

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)

Rationale for Supporting Documents

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Bachelor of Arts
CIM Prospectus	
Academic Level	Undergraduate
Program Code	CHEM-BA
Department	Chemistry
Discipline	Chemistry
Offered by	
Title	Chemistry BA
CIP Code	40.0501 - Chemistry, General.

Purpose

Intended Audience

Program-Specific Admission

Program Requirements and Description

Bachelor of Arts

Chemistry

Freshman Year			
First Semester	Credits	Second Semester	Credits
CHEM 1100	1	CHEM 1320	3
CHEM 1110	1	CHEM 1510	2
CHEM 1310	4	MATH 1215	4
CHEM 1319	1	HISTORY 1100	3
ENGLISH 1120	3	Humanities Elective[1]	3
MATH 1214 or 1210 ***and*** 1211	4		
	14		15
Sophomore Year			
First Semester	Credits	Second Semester	Credits
Biological Science Elective	3	CHEM 2220	3
CHEM 2210	3	CHEM 2229	1
CHEM 2219	1	ENGLISH 1160 or 3560	3
Foreign Language Elective	4	Foreign Language Elective	4
HISTORY 1200	3	Minor Degree Elective	3
		Social Science Elective[1]	3
	14		17
Junior Year			
First Semester	Credits	Second Semester	Credits
CHEM 2510	4	CHEM 2410	3
Foreign Language Elective	4	Chemistry Elective	3
PHYSICS 1145 or 1135	4	Humanities Elective[1]	3
STAT 3113	3	PHYSICS 2145 or 2135	4
		Social Science Elective[1]	3
	15		16
Senior Year			
First Semester	Credits	Second Semester	Credits
CHEM 3419	1	Chemistry Elective	3
CHEM 4010 or 4099	1	Humanities Elective[1]	3
Chemistry Elective	3	Minor Degree Electives	6
Humanities Elective (Literature)[1]	3	Social Sciences Elective[1]	3
Minor Degree Elective	3		
Social Science Elective[1]	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

Freshman Year

First Semester	Credits	Second Semester	Credits
CHEM 1100	1	BIO SCI 1113	3
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	CHEM 1510	2
EDUC 1074	3	EDUC 1104	1
ENGLISH 1120	3	MATH 1215	4
MATH 1214 or 1210 ***and*** 1211	4	PSYCH 1101	3
	16		16

Sophomore Year

First Semester	Credits	Second Semester	Credits
CHEM 2210	3	CHEM 2220	3
CHEM 2219	1	ECON 1100, or 1200, or POL SCI 1200	3
EDUC 2102 or PSYCH 2300	3	EDUC 3216	3
ENGLISH 1160 or 3560	3	ENGLISH 1221 or 1222	3
PHYSICS 1145 or 1135	4	HISTORY 1100	3
	14		15

Junior Year

First Semester	Credits	Second Semester	Credits
BIO SCI 2263	3	ART 1180, or MUSIC 1150, or THEATRE 1190	3
CHEM 2510	4	CHEM 2410	3
CHEM 4010 or 4099	1	EDUC 3298	1
EDUC 1164	2	HISTORY 1200	3
EDUC 3170	3	HISTORY 3530, or PHILOS 4345, or HISTORY 3534	3

PHYSICS 1505 or GEOLOGY 1110	3	PSYCH 4310 or EDUC 2310	3
	16		16
Senior Year			
First Semester	Credits	Second Semester	Credits
CHEM 4610	3	EDUC 4298	1
~~CHEM 3419~~	~~1~~	EDUC 4299	12
EDUC 3280	3		
EDUC 3340	3		
PHILOS 1105	3		
PSYCH 3310	3		
	15		13

Total Credits: 121

Students must complete a minimum of 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 Documents Bachelor of Arts Chemistry sp2025 redline.docx

Reviewer

Comments

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

Key: 151

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

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

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)

Rationale for Inactivation

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)

Supporting Documents

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

CIM Prospectus

Academic Level	Undergraduate
Program Code	CP ENG-BS
Department	Electrical & Computer Engr
Discipline	Computer Engineering

Offered by

Title

Computer Engineering BS

CIP Code

Purpose

Intended Audience

Program-Specific

Admission

Program Requirements and Description

Bachelor of Science Computer Engineering[1]

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
CHEM 1305	4	COMP SCI 1500	3
CHEM 1319	1	Gen Ed Elective[5]	6
ENGLISH 1120	3	MATH 1215[3]	4
FR ENG 1100[2]	1	PHYSICS 1135[3,4]	4
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3		
MATH 1214 or 1211[3,18]	4		
~~CHEM 1310~~	~~4~~		
	16		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
COMP SCI 1570[3]	3	COMP ENG 2010 or ELEC ENG 2010	1
COMP SCI 1580[3]	1	COMP ENG 2210[3,6]	3
ELEC ENG 2100[3,6]	3	COMP ENG 2211[3,6]	1
ELEC ENG 2101[3,6]	1	COMP SCI 1200[3]	3
MATH 3304[3]	3	COMP SCI 1575[3]	3
PHYSICS 2135[3,4]	4	ELEC ENG 2120[3,6]	3
		MATH 2222[3]	4
	15		18

Junior Year

First Semester	Credits	Second Semester	Credits
COMP ENG 3110[3]	3	COMP ENG Elective A[3,11]	3
ELEC ENG 2200[3,6]	3	COMP ENG 3150[3]	3
ELEC ENG 2201[3,6]	1	COMP SCI 3800 or 2500[3]	3
Mathematics Elective[7]	3	ELEC ENG 3410[3,6]	3
SP&M S 1185[10]	3	ENGLISH 3560 or 1160	3
STAT 3117[9]	3		
	16		15

Senior Year

First Semester	Credits	Second Semester	Credits
COMP ENG Elective B[3,11]	3	COMP ENG Elective D[3,12,13]	3
COMP ENG Elective C[3,14]	3	COMP ENG Elective E[3,12,13]	3
COMP ENG 4096[3,15]	1	COMP ENG 4097[15]	3
COMP ENG 5410[3, 11, 14]	3	Free Elective[16]	3
Engineering Science Elective [8]	3	Professional Development Elective[17]	3
Gen Ed Elective[5]	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:

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

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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

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Bachelor of Science
Academic Level	Undergraduate
Program Code	EDUC-BS
Department	Education
Discipline	Education
Title	

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

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

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

Education BS

CIP Code

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

EDUC 1104	Teacher Field Experience I	1
EDUC 1074	Foundations of Education in a Diverse Society	3
EDUC 1164	Teacher Field Experience II	2
EDUC 2102	Educational Psychology	3
or PSYCH 2300	Educational Psychology	
EDUC 2310	Education Of The Exceptional Child	3
or PSYCH 4310	Psychology Of The Exceptional Child	
EDUC 3216	Instructional Literacy in the Content Area	3
EDUC 3340	Assessment of Student Learning	3
PSYCH 3310	Developmental Psychology	3
EDUC 4298	Student Teaching Seminar	1
EDUC 4299	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.

ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
or SP&M S 1185	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
HISTORY 1200	Modern Western Civilization	3
or POL SCI 1200	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.

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

EDUC 3215	Teaching Reading in Elementary and Early Childhood Settings	3

EDUC 3217	Analysis and Correction of Reading Difficulties	3
EDUC 3218	Language Arts for Elementary and Early Childhood Teachers	3
EDUC 3220	Teaching Science in the Elementary and Early Childhood Classroom	3
EDUC 3221	Methods of Teaching Math	3
EDUC 3222	Geometric Concepts for Teachers	3
EDUC 3203	Introduction to STEM Education	3
EDUC 3430	Diverse Literature for Children	3
EDUC 3530	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.

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

EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3298	Teacher Field Experience III	1
EDUC 3335	Curriculum And Instruction Of The Middle School	3
EDUC 3203	Introduction to STEM Education	3
EDUC 3222	Geometric Concepts for Teachers	3
MATH 1103	Fundamentals Of Algebra	3
MATH 1120	College Algebra	3-5
or MATH 1140	College Algebra	
~~MATH 1208~~	~~Calculus With Analytic Geometry I~~	~~4-5~~
~~or MATH 1214~~	~~Calculus I~~	
~~or MATH 1210~~	~~Calculus I-A~~	
MATH 1214	Calculus I	4-5
or MATH 1210	Calculus I-A	
EDUC 3221	Methods of Teaching Math	3
MATH 1215	Calculus II	4
or MATH 1211	Calculus I-B	
or MATH 1212	Survey of Calculus	
COMP SCI 1500	Computational Problem Solving	3
or IS&T 1551	Implementing Information Systems: User Perspective	
STAT 1115	Statistics For The Social Sciences I	3
or STAT 3113	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.

EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3335	Curriculum And Instruction Of The Middle School	3
EDUC 3203	Introduction to STEM Education	3
EDUC 3220	Teaching Science in the Elementary and Early Childhood Classroom	3
BIO SCI 1113	General Biology	3
or BIO SCI 1213	Principles of Biology	
EDUC 3298	Teacher Field Experience III	1
BIO SCI 1219	General Biology Lab	1
BIO SCI 1173	Introduction to Environmental Sciences	3
PHYSICS 1505	Introductory Astronomy	3-4
or PHYSICS 1145	College Physics I	
GEOLOGY 1110	Physical and Environmental Geology	3
GEOLOGY 1120	Evolution Of The Earth	3
HISTORY 3530	History of Science	3
or PHILOS 4345	Philosophy Of Science	
CHEM 1310	General Chemistry I	4
CHEM 1319	General Chemistry Laboratory	1
BIO SCI 2223	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.

EDUC 3280	Instructional Strategies in the Content Area	3

EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3335	Curriculum And Instruction Of The Middle School	3
EDUC 3530	Teaching Integrated Social Studies and Humanities	3
EDUC 3350	Social Studies In The Elementary School	3
HISTORY 1100	Early Western Civilization	3
or HISTORY 1200	Modern Western Civilization	
EDUC 3298	Teacher Field Experience III	1
HISTORY 1300	American History To 1877	3
or HISTORY 1310	American History Since 1877	
PSYCH 4600	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

ART 1001	Special Topics	3
or ART 2000	Special Problems	
ART 1120	Drawing I	3

or ART 2130	Advanced Drawing	
ART 1140	Painting I	3
or ART 2150	Advanced Painting	
ART 1164	Sculpture	3
ART 1180	Art Appreciation	3
or ART 1185	Study Of Film	
or ART 3203	Architectural Design I	
or ART 3275	Foundations of Media Communication	
ART 2001	Special Topics	3
ART 3100	Advanced Art Studio	3
ART 3221	Fundamentals in Photography	3
or SP&M S 3221	Fundamentals in Photography	
ART 3260	Exploring Digital Art	3
EDUC 3280	Instructional Strategies in the Content Area	3
Computer Science Content Area		
BUS 1110	Introduction to Management and Entrepreneurship	3
BUS 2910	Business Law	3
IS&T 1551	Implementing Information Systems: User Perspective	3
IS&T 1552	Implementing Information Systems: Data Perspective	3
IS&T 1750	Introduction to Management Information Systems	3
IS&T 3333	Data Networks and Information Security	3
IS&T 3343	Systems Analysis	3
IS&T 3420	Introduction to Data Science and Management	3
IS&T 4444	Introduction to Data Warehouses	3
IS&T 4654	Introduction to Web Design and Digital Media Studies	3
General Science Content Area		
BIO SCI 1113	General Biology	3
or BIO SCI 1213	Principles of Biology	
BIO SCI 1219	General Biology Lab	1

BIO SCI 1223	Biodiversity	3
BIO SCI 1173	Introduction to Environmental Sciences	3
BIO SCI 1229	Biodiversity Lab	1
BIO SCI 2223	General Genetics	3
CHEM 1310	General Chemistry I	4
CHEM 1319	General Chemistry Laboratory	1
GEOLOGY 1110	Physical and Environmental Geology	3
GEOLOGY 1120	Evolution Of The Earth	3
HISTORY 3530	History of Science	3
or PHILOS 4345	Philosophy Of Science	
PHYSICS 1145	College Physics I	4
PHYSICS 1505	Introductory Astronomy	3
Spanish Content Area		
SPANISH 1101	Elementary Spanish I	4
SPANISH 1102	Elementary Spanish II	4
SPANISH 1180	Intermediate Spanish	4
SPANISH 2110	Basic Spanish Conversation	3
SPANISH 2160	Hispanic Culture	3
SPANISH 2170	Masterpieces Of Hispanic Literature	3
SPANISH 2180	Intermediate Spanish Composition	3
SPANISH 4302	Phonetics and Phonology of Spanish	3
SPANISH 4311	Advanced Spanish Conversation	3

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

Final Catalog	FS2026-SP2027

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

Rationale for Inactivation	
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[1]

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
CHEM 1305	4	MATH 1215[3]	4
CHEM 1319	1	MECH ENG 1720	3
ENGLISH 1120	3	PHYSICS 1135[3,4]	4
FR ENG 1100[2]	1	Gen Ed Elective[5]	6
~~CHEM 1310~~	~~4~~		
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3		
MATH 1214 or 1211[3, 17]	4		
	16		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
COMP ENG 2210[3,6]	3	COMP SCI 1500	3
COMP ENG 2211[3,6]	1	ELEC ENG 2120[3]	3
ELEC ENG 2010 or COMP ENG 2010	1	ELEC ENG 2410[3, 6]	3
ELEC ENG 2100[3,6]	3	ELEC ENG 2411[3, 6]	1
ELEC ENG 2101[3,6]	1	MATH 2222[3]	4
MATH 3304[3]	3	Engineering Science Elective[7]	3
PHYSICS 2135[3,4]	4		
	16		17

Junior Year

First Semester	Credits	Second Semester	Credits
ELEC ENG 3100[3,6]	3	ELEC ENG 3430[3,6]	3
ELEC ENG 3101[3,6]	1	ELEC ENG 3431[3,6]	1
ELEC ENG 3320[3,6]	3	ELEC ENG 3600[3]	3

ELEC ENG 3321[3,6]	1	El Eng Elective A[10,15]	3
MATH 3108	3	ENGLISH 3560 or 1160	3
SP&M S 1185[9]	3	STAT 3117[8]	3
	14		16

Senior Year

First Semester	Credits	Second Semester	Credits
ELEC ENG 4096[3]	1	ELEC ENG 4097	3
El Eng Elective B[10]	3	El Eng Elective C[10]	3
El Eng Elective D[12,15]	3	El Eng Elective E[13,15]	3
El Eng Power Elective[3,6,11]	3	Free Elective[14]	3
El Eng Power Elective Lab[3,6,11]	1	Professional Development Elective[16]	3
Free Elective[14]	3		
Gen Ed Elective[5]	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 El Eng Electives A, D, and E. Students admitted to the accelerated BS/MS program must satisfy El Eng Electives D and E with 5xxx or 6xxx-level courses and a minimum grade of B.

16

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.

17

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		
Communications and Signal Processing		
ELEC ENG 3410	Digital Signal Processing	3
ELEC ENG 3440	Digital Communications II	3
ELEC ENG 44XX and ELEC ENG 54XX Courses		
Computer Engineering		

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.		
Controls and Systems		
ELEC ENG 3340	Basic Programmable Logic Controllers	3
ELEC ENG 43XX and ELEC ENG 53XX Courses		
Electromagnetics		
ELEC ENG 46XX and ELEC ENG 56XX Courses		
Optics and Devices		
ELEC ENG 3250	Electronic And Photonic Devices	3
ELEC ENG 42XX and ELEC ENG 52XX Courses		
Power and Energy		
ELEC ENG 3500	Electromechanics	3
ELEC ENG 3540	Power System Design And Analysis	3
ELEC ENG 5150	Photovoltaic Systems Engineering	3
ELEC ENG 5520	Power Electronics	3
ELEC ENG 5521	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.

Key: 155

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: 02/23/26 3:25 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	Minor
Academic Level	Undergraduate
Program Code	EL ENG-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 10:08 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

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 ~~engieering~~ 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 3 lecture hours at the 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

Key: 231

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: 02/23/26 3:01 pm

Changes proposed by: Irina Ivliyeva (ivliyeva)

Catalog Pages Using this Program

Foreign Languages

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Minor
Academic Level	Undergraduate
Program Code	FRENCH-MI
Department	Arts, Languages & Philosophy
Discipline	French
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

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 above the 2000-level, ~~at the 2000-level or 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 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.

Key: 217

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	Doctor of Philosophy
Academic Level	Graduate
Program Code	GEO ENG-PHD
Department	Earth Sciences and Engineering
Discipline	Geological Engineering
Title	

In Workflow

1. **RGEOSENG 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 RGEOSENG 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

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: 02/23/26 3:03 pm

Changes proposed by: Irina Ivliyeva (ivliyeva)

Catalog Pages Using this Program

Foreign Languages

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Minor
Academic Level	Undergraduate
Program Code	GERMAN-MI
Department	Arts, Languages & Philosophy
Discipline	German
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

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 above the 2000-level, ~~at the 2000-level or 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 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.

Key: 218

Program Change Request

Date Submitted: 02/09/26 5:41 pm

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

Last approved: 06/14/22 4:25 pm

Last edit: 02/09/26 5:41 pm

Changes proposed by: Katie Shannon (shannonk)

Catalog Pages Using this Program

Prehealth Professions

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Minor
Academic Level	Undergraduate
Program Code	PRE-MED-MI
Department	College of Arts & Sciences
Discipline	Pre-Medicine
Title	

In Workflow

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

Approval Path

1. 02/27/26 9:51 am Hannah Johnson (hjh9x): Approved for CCC Secretary
2. 02/27/26 9:55 am Crystal Wilson (wilsoncry): Rollback to CCC Secretary for Pending CCC Agenda post
3. 02/27/26 9:57 am Hannah Johnson (hjh9x): Approved for CCC Secretary
4. 02/27/26 10:04 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

History

1. Mar 31, 2014 by pantaleoa
2. Mar 31, 2014 by pantaleoa
3. Dec 11, 2017 by David Westenberg (djwesten)
4. Apr 28, 2020 by Katie Shannon (shannonk)
5. Feb 3, 2021 by Katie Shannon (shannonk)
6. Jun 14, 2022 by Katie Shannon (shannonk)

Pre-Medicine Minor

CIP Code

Intended Aud

Program Requirements and Description

Premedicine Minor

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

BIO SCI 1213 & BIO SCI 1219	Principles of Biology and General Biology Lab	4
or BIO SCI 1113 & BIO SCI 1219	General Biology and General Biology Lab	
BIO SCI 2213 & BIO SCI 2219	Cell Biology and Cell Biology Laboratory	4
CHEM 1310 & CHEM 1319 & CHEM 1320 & CHEM 1100	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	9
CHEM 2210 & CHEM 2219 & CHEM 2220 & CHEM 2229	Organic Chemistry I and Organic Chemistry I Lab and Organic Chemistry II and Organic Chemistry II Lab	8
PHYSICS 1145	College Physics I	4
or PHYSICS 1135	Engineering Physics I	
PHYSICS 2145	College Physics II	4
or PHYSICS 2135	Engineering Physics II	
~~MATH 1211~~	~~Calculus I-B~~	~~4~~
~~or MATH 1212~~	~~Survey of Calculus~~	
~~or MATH 1214~~	~~Calculus I~~	
PREMED 3010	Communication Workshop for the Pre-Health Student	1
One of the following courses (taking all four courses is strongly encouraged):		
BIO SCI 2223	General Genetics	
BIO SCI 3333	Human Anatomy and Physiology I	
BIO SCI 3343	Human Anatomy and Physiology II	
CHEM 4610	General Biochemistry	

Justification for request

making this minor available to all majors. Making PREMED course required and removing Calculus

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents

Reviewer Comments

Crystal Wilson (wilsoncry) (02/27/26 9:55 am): Rollback: Rollback because it needs to go to the DSCC.

Key: 123

Program Change Request

New Program Proposal

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

Viewing: PROPOSED : Data Science BS

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

Changes proposed by: Daniel Reardon (reardond)

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

Final Catalog	FS2026-SP2027

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

Rationale for Inactivation

Supporting Documents

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Bachelor of Science
CIM Prospectus Academic Level	Undergraduate

Program Code	PROPOSED
Department	Mathematics & Statistics
Discipline	Mathematics
Offered by	
Title	
Data Science BS	
CIP Code	30.7001 - Data Science, General.

Purpose

Intended Audience

Program-Specific Admission

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
COMP SCI 1500[1]	3	COMP SCI 1200[1]	3
MATH 1101 or FR ENG 1100[1]	1	COMP SCI 1570[1]	3
MATH 1214 or 1211[1]	4	COMP SCI 1580[1]	1
ECON 1100 or 1200	3	MATH 1215[1]	4
ENGLISH 1120	3	ENGLISH 1160 or SPM S 1185[4]	3
Natural Science Elective[5]	3	Behavioral and Social Sciences Requirement[6,9]	3
Basic ROTC (if elected)[12]	0	Basic ROTC (if elected)[12]	0
	17		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
COMP SCI 1575[1]	3	COMP SCI 2300[1]	3
COMP SCI 1585[1]	1	COMP SCI 2500[1]	3
MATH 2222[1]	4	MATH 3108[1]	3
Statistics Requirement[1,3]	3	STAT 5346 or COMP SCI 5204[1]	3
Natural Science Elective with Laboratory [5]	4	Humanities and Fine Arts Requirement[7,9]	3
Basic ROTC (if elected)[12]	0	Basic ROTC (if elected)[12]	0
	15		15

Junior Year

First Semester	Credits	Second Semester	Credits
COMP SCI 3402[1]	3	Electives - Emphasis Area[1]	6
STAT 5353[1]	3	Humanities, Arts, and Social Sciences Requirement[8,9]	3
Electives - Emphasis Area[1]	6	Electives[11]	6
Humanities and Fine Arts Requirement[7,9]	3		
	15		15

Senior Year

First Semester	Credits	Second Semester	Credits
Electives - Emphasis Area[1]	6	Electives - Data Science[1,10]	3
Electives[11]	8	Electives[11]	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).

8

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

Required courses:

COMP SCI 5206	Probability and Its Applications in Computing	3
COMP SCI 5400	Introduction To Artificial Intelligence	3
COMP SCI 5420	Introduction to Machine Learning	3
or COMP SCI 5402	Introduction to Data Mining	
COMP SCI 5421	Reinforcement Learning	3
COMP SCI 5480	Deep Learning	3
COMP SCI 5700	Bioinformatics	3

Mathematics and Statistics Emphasis Area

Required courses:

MATH 5670	Scientific Programming with Python	3
STAT 5643	Probability And Statistics	3
STAT 5644	Mathematical Statistics	3
Select three of the following:		
MATH 3109	Foundations Of Mathematics	3
MATH 5680	Mathematics of Machine Learning	3
STAT 4210	Introduction to Statistical Data Science	3
STAT 5364	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	BS Data Science Curriculum.docx

Documents

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.

Key: 431

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

Data Science MS

CIP Code 30.7001 - Data Science, General.

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:

COMP SCI 5206	Probability and Its Applications in Computing	3
or STAT 5643	Probability And Statistics	
COMP SCI 5420	Introduction to Machine Learning	3
or MATH 5680	Mathematics of Machine Learning	
COMP SCI 5400	Introduction To Artificial Intelligence	3
COMP SCI 5480	Deep Learning	3
STAT 5346	Regression Analysis	3
or COMP SCI 5204	Regression Analysis	
STAT 5364	Causal Data Science	3
Primary focus area electives		6
Secondary focus area elective		3
Additional elective [1]		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

COMP SCI 5402	Introduction to Data Mining	3
COMP SCI 5409	Applied Social Network Analysis	3
COMP SCI 5411	Natural Language Processing	3
COMP SCI 5480	Deep Learning	3
COMP SCI 5700	Bioinformatics	3
COMP SCI 6202	Markov Decision Processes	3
COMP SCI 6400	Advanced Topics In Artificial Intelligence	3

COMP SCI 6401	Advanced Evolutionary Computing	3
COMP SCI 6402	Advanced Topics in Data Mining	3
COMP SCI 6406	Machine Learning in Computer Vision	3
COMP SCI 6407	Internet of Things with Data Science	3
Statistical Learning Focus Area Electives		
STAT 5210	Statistical Data Analysis Using R	3
STAT 5270	Foundations of Statistical Learning	3
STAT 5290	Computational Bayesian Methods using Python	3
STAT 5353	Statistical Data Analysis	3
STAT 5814	Applied Time Series Analysis	3
STAT 6239	Clustering Algorithms	3
STAT 6342	Categorical Data Analysis	3
STAT 6343	Nonparametric Statistical Methods	3
STAT 6344	Design And Analysis Of Experiments	3
STAT 6545	Multivariate Statistical Methods	3
Additional Course Options		
COMP ENG 5310	Computational Intelligence	
COMP SCI 5200	Analysis Of Algorithms	3
COMP SCI 5201	Object-Oriented Numerical Modeling I	3
COMP SCI 5408	Game Theory for Computing	3
COMP SCI 5802	Introduction to Parallel Programming and Algorithms	3
COMP SCI 6204	Applied Graph Theory for Computer Science	3
COMP SCI 6304	Cloud Computing and Big Data Management	3
COMP SCI 6601	Privacy Preserving Data Integration and Analysis	3
ECON 5360	Data Driven Strategic Insights	3
ECON 5380	Data Intelligence using Case Studies	3
ENG MGT 5414	Introduction To Operations Research	3
ENG MGT 6412	Mathematical Programming	3
ENG MGT 6415	Optimization under Uncertainty	3

IS&T 5420	Business Analytics and Data Science	3
MATH 5601	Introduction to Numerical Analysis	3
MATH 5670	Scientific Programming with Python	3
MATH 5762	Marketing Revolution with Machine Learning	3
MATH 6490	Nonlinear Optimization in Machine Learning	3
STAT 5644	Mathematical Statistics	3
STAT 6553	Linear Statistical Models I	3
STAT 6841	Stochastic Processes	3
SYS ENG 5212	Introduction to Neural Networks and Applications	3
SYS ENG 6102	Information Based Design	3
SYS ENG 6213	Deep Learning	3
SYS ENG 6215	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.

Key: 432

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 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	

Disaster Management CT

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

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:		
ENG MGT 5312	Advanced Risk Assessment and Reduction	3
ENV SCI 6667	Disaster Management in Changing Climates	3
Choose two courses from the following:		
ENG MGT 5316	Safety Engineering Management	3
GEO ENG 4321	Drone Mapping and Photogrammetry	3
GEO ENG 5144	Remote Sensing Technology	3
GEO ENG 6146	Advanced Remote Sensing And Image Processing	3
POL SCI 4500	Geopolitics and International Security	3
PSYCH 5710	Advanced Human Factors	3

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 Documents: Signed Grad Cert Disaster Mangagement.pdf

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

prerequires 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.

Key: 437

Program Change Request

New Program Proposal

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

Viewing: **PROPOSED : Environmental Conservation CT**

Last edit: 02/24/26 2:25 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

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:		
ENV SCI 6560	Environmental Ecology and Management	3
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.		
BIO SCI 5423	Advanced Biodiversity	3
BIO SCI 5443	Population and Conservation Genetics	3
BIO SCI 5523	Ichthyology	3
BIO SCI 6313	Environmental Microbiology	3
BIO SCI 6363	Advanced Freshwater Ecology	3
BIO SCI 6463	Bioremediation	3
BIO SCI 6563	Advanced Global Ecology	3
CHEM 5710	Environmental Chemistry	3

ENV ENG 5635	Phytoremediation and Natural Treatment Systems: Science and Design	3
ENV ENG 5640	Environmental Law And Regulations	3
ENV ENG 5642	Sustainability, Population, Energy, Water, and Materials	3
ENV SCI 5779	Environmental Safety	3
ENV SCI 6667	Disaster Management in Changing Climates	3
GEOLOGY 4321	Drone Mapping and Photogrammetry	3
GEOLOGY 5111	Advanced Physical Geology	3
GEOLOGY 5679	Field and Laboratory Studies in Earth Science	3
GEOLOGY 5741	Micropaleontology	3
GEOLOGY 6421	Environmental Geology	3
GEOLOGY 6541	Geology of Natural Resources	3
GEOLOGY 6611	Advanced Palynology	3
GEOLOGY 6711	Advanced Paleoclimatology and Paleoecology	3
GEO ENG 5144	Remote Sensing Technology	3
GEO ENG 5276	Sustainability in Mining	3
GEO ENG 5331	Subsurface Hydrology	3
GEO ENG 5332	Fundamentals of Groundwater Hydrology	3
GEO ENG 6146	Advanced Remote Sensing And Image Processing	3
STAT 5260	Statistical Data Analysis Using SAS	3
STAT 5290	Computational Bayesian Methods using Python	3
STAT 5346	Regression Analysis	3
STAT 5353	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.

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	

Environmental Health & Safety CT

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

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:		
PSYCH 5740	Occupational Health and Safety	3
Choose one course from the following:		
ENG MGT 5312	Advanced Risk Assessment and Reduction	3
ENG MGT 5316	Safety Engineering Management	3
ENV ENG 5640	Environmental Law And Regulations	3
PSYCH 5710	Advanced Human Factors	3
Choose at least two courses from the following:		
BIO SCI 6383	Advanced Toxicology	3
ENV ENG 5650	Public Health Engineering	3
ENV ENG 5665	Indoor Air Pollution	3
ENV SCI 5779	Environmental Safety	3
GEO ENG 5237	Geological Aspects Of Hazardous Waste Management	3
NUC ENG 5367	Radioactive Waste Management And Remediation	3

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.

Key: 436

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 RENGMNGT 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

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:

ENG MGT 2310	Introduction to System Engineering	3
ENG MGT 3320	Introduction to Project Management	3
SYS ENG 5101	System Engineering and Analysis	3
SYS ENG 5211	Computational Intelligence	3
SYS ENG 5281	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.

Key: 439

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: 02/23/26 3:05 pm

Changes proposed by: Irina Ivliyeva (ivliyeva)

Catalog Pages Using this Program

Foreign Languages

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Minor
Academic Level	Undergraduate
Program Code	RUSS-MI
Department	Arts, Languages & Philosophy
Discipline	Russian
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

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 above ~~at~~ the 2000-level, ~~2000-level or 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.

Key: 219

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: 02/23/26 3:06 pm

Changes proposed by: Irina Ivliyeva (ivliyeva)

Catalog Pages Using this Program

Foreign Languages

Effective Catalog Edition	FS2026-SP2027
Start Term	Fall 2026
Program Type	Minor
Academic Level	Undergraduate
Program Code	SPAN-MI
Department	Arts, Languages & Philosophy
Discipline	Spanish
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

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 above ~~at~~ the 2000-level, ~~2000-level or 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.

Key: 220

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	Minor
Academic Level	Graduate
Program Code	TCH CM-MIG
Department	English & Tech Communication
Discipline	Technical Communication
Title	

In Workflow

1. **RENGLISH 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 RENGLISH 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

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		
BIO SCI 6313	Environmental Microbiology	3
BUS 5111	Business Negotiations	3
ENGLISH 2410	Theory Of Written Communication	3
ENGLISH 5571	Advanced Writing For Science & Engineering	3
~~GEO ENG 5092~~	~~International Engineering and Design~~	~~3~~
IS&T 6887	Research Methods in Business and IS&T	3
MATH 3109	Foundations Of Mathematics	3
MATH 5603	Methods of Applied Mathematics	3
MATH 5108	Linear Algebra II	3
MATH 5154	Mathematical Logic I	3
MS&E 6120	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

Key: 133