Campus Curricula Committee Meeting Agenda

November 10, 2026
8:15am - 9:30am, Fulton Hall 120
(For Faculty Senate Meeting of December 10, 2026)

Review of submitted Course Change forms:

File: 5019 BME 3100 : Fundamentals of Transport in Biomedical Engineering
File: 10555 BUS 4051 : Sport Management
File: 10556 BUS 5151 : Professional and Technical Sales
File: 10554 BUS 5970 : Creativity, Innovation, and Design Thinking
File: 5692 CER ENG 2110 : Atomic Structure Of Crystaline Ceramics
File: 5694 CER ENG 2120 : Introduction To Glass Science And Technology
File: 5701 CER ENG 2200 ~~3230~~ : Thermodynamics of Materials
File: 2160 CER ENG 3220 : Phase Equilibria
File: 519 CER ENG 3240 : Applied Glass Forming
File: 10383 CER ENG 3320 : Defects and Transport in Ceramics
File: 5704 CER ENG 3415 ~~3410~~ : Characterization of Materials ~~Characterization Of Inorganic Solids~~
File: 4647 CER ENG 4230 : Introduction to Composite Materials
File: 2618 CER ENG 4310 : Ceramic Processing
File: 4413 CER ENG 4410 : Introduction to Integrated Computational Materials Engineering
File: 178 CER ENG 5115 : X-Ray Diffraction Analysis
File: 5718 CER ENG 5250 : Refractories
File: 1842 CER ENG 5310 : Microelectronic Ceramics ~~Advanced Ceramic Processing~~
File: 2422 CER ENG 6230 : Composite Materials
File: 1518 CER ENG 6260 : Advanced Electrical Properties of Ceramics
File: 4414 CER ENG 6410 : Advanced Integrated Computational Materials Engineering
File: 10409 EDUC 1240 : Technology and AI Use in Education
File: 941 EDUC 2211~~3211~~ : Child Development
File: 4519 EDUC 2430 ~~3430~~ : Diverse Literature for Children
File: 770 EDUC 3164 ~~1164~~ : Teacher Field Experience II
File: 1758 EDUC 3216 : ~~Instructional~~ Literacy in the Content Area
File: 4517 EDUC 3220 : Teaching Science ~~Teaching Science in the Elementary and Early Childhood Classroom~~
File: 2541 EDUC 3221 : Methods of Teaching Math
File: 8792 MATH 5222 : Vector And Tensor Analysis
File: 460 MET ENG 3130 : Metals Microstructural Development
File: 8955 MET ENG 4350 : Process Metallurgy Applications
File: 1290 MET ENG 4450 : Steelmaking
File: 8968 MET ENG 5220 : Recent Advances In Extractive Metallurgy
File: 313 MET ENG 5310 : Corrosion and Its Prevention

File: 8969 MET ENG 5330 : Nonferrous Alloys
File: 1455 MET ENG 5450 : Advanced Steelmaking
File: 2364 MET ENG 5480 : Refining Of Metals
File: 4391 MET ENG 5525 : Scanning Electron Microscopy Lab
File: 4073 MET ENG 5620 : Materials Behavior
File: 4287 MET ENG 6160 : Advanced Mechanical Metallurgy
File: 4434 MET ENG 6325 : Advanced Ferrous Microstructures
File: 4392 MET ENG 6535 : Transmission Electron Microscopy Lab
File: 4295 MS&E 6310 : Advanced Biomaterials ~~II~~
File: 10516 PHYSICS 4401 : Introduction to Quantum Science and Technology
File: 10559 PHYSICS 4411 : Physics of Quantum Information
File: 10560 PHYSICS 4421 : Quantum Devices
File: 10562 PHYSICS 5343 : Superconductivity
File: 10561 PHYSICS 5353 : Quantum Materials
File:10563 PHYSICS 5523 : Quantum Optics
File: 10419 POL SCI 5300 : Advanced Principles of Public Policy
File: 10565 SEMI ENG 4099 : Undergraduate Research

Review of submitted Program Change forms:

File: 142 AP MATH-BS : Applied Mathematics BS
File: 146 BIO SC-BA : Biological Sciences
File: 148 BUS&MS-BS : Business and Mgmt Systems BS
File: 151 CHEM-BA : Chemistry BA
File: 149 CR ENG-BS : Ceramic Engineering BS
File: 344 EDUC-BS : Education BS
File: 391 EDYC-CTU : Undergraduate Certificate in Education of Young Children CTU
File: 382 ENV SCI-BS : Environmental Science BS
File: 64 GL&GPH-BS : Geology and Geophysics BS
File: 157 HIST-BA : History BA
File: 75 IST-BS : Information Science and Tch BS
File: 425 MAT S E-MI : Materials Science and Engineering Minor
File: 90 MT ENG-BS : Metallurgical Engineering BS
File: 115 PHYSIC-BS : Physics BS
File: 440 PROPOSED : Environmental Policy CT
File: 444 PROPOSED : Quantum Science and Technology
File: 192 PSYCH-BA : Psychological Science BA
File: 424 SEMI EN-BS : Semiconductor Engineering BS
File: 378 TEACH-CTU : Teaching and Learning Undergraduate Certificate

Review of submitted Experimental Course forms:

File: 578 CHEM 5001.006 : Practical Artificial Intelligence for Chemistry
File: 568 COMP ENG 5001.008 : Machine Learning for Engineers

File: 575 NUC ENG 5001.003 : Compuatational Methods for Nuclear Materials
File: 574 NUC ENG 5001.004 : Plasma Material Interactions

New Business:

- RP&A pending outcome.
- EC Policy discussion.
- Reconsider the 4000/5000 courses at undergrad graduate level recommendation. Consider opening this to all undergraduate/graduate numberings.
- Confirm CCC Meeting dates for Spring 2027 Semester.

Course Change Request

Date Submitted: 10/15/26 5:35 pm

Viewing: BME 3100 : Fundamentals of Transport in Biomedical Engineering

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

Last edit: 10/19/26 9:20 am

Changes proposed by: Christi Luks (luksc)

Programs referencing this course

BIOMED-BS: Biomedical Engineering BS

Other Courses referencing this course

In The Catalog Prerequisites:

CHEM ENG 5250 : Isolation and Purification of Biologicals

Requested Effective Date	Fall 2027
Department	Chemical and Biochemical Engineering (RCHEMENG)
Discipline	Biomedical Engineering (BME)
Course Number	3100
Title	Fundamentals of Transport in Biomedical Engineering
Abbreviated Course Title	Fund BioTransport
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. 10/16/26 2:41 pm Ryan Gilbert (rggnx): Approved for RCHEMENG Chair
2. 10/19/26 9:21 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/21/26 11:09 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:26 am Hannah Johnson (hjh9x): Approved

Catalog Description

for Pending CCC Agenda post

History

1. May 17, 2024 by Christi Luks (luksc)

This course covers the fundamentals of momentum, energy, and mass transport with an emphasis on the applications in biology and biotechnology. General differential equations for momentum, energy, and mass transfer are presented and solved for a variety of biomedical engineering problems.

Prerequisite(s):
A grade of "C" or better in Math 3304 and either Chem Eng 2110 or Cer Eng 2200. ~~3230.~~

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	4

Total: 4

Required for Majors: Yes

Elective for Majors: No

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

Justification
Cer Eng course change

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Crystal Wilson (wilsoncry) (10/19/26 9:20 am): Answered 'no' for CI and CE

Key: 5019

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 09/23/26 6:43 am

Viewing: BUS 4051 : Sport Management

Last edit: 09/28/26 2:02 pm

Changes proposed by: Cecil Eng Huang Chua (cecq8z)

Requested Effective Date	Fall 2027
Department	Jaggi School of Business (RBUS&IT)
Discipline	Business (BUS)
Course Number	4051
Title	Sport Management
Abbreviated Course Title	Sport Management
Co-Listed Course	

Catalog Description

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
10. CAT entry
11. Peoplesoft

Approval Path

1. 09/23/26 3:45 pm Cassie Elrod (cassa): Approved for RBUS&IT Chair
2. 10/05/26 8:46 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:37 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:26 am Hannah Johnson (hjh9x): Approved for Pending CCC

Agenda post

This course is designed to provide students with an overview of the management and operations of sport, fitness, and leisure organizations.

Prerequisite(s):

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

Run twice as BUS 5001.001
FS 2024 20 enrolled
FS 2025 11 enrolled

Often transferred in from other schools.

Semesters Previously Offered

Term(s) Offered as experimental

FS 2024 with 20 enrolled

FS 2025 with 11 enrolled

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (09/25/26 8:45 am): Removed the word none from the prereq and coreq sections. Confirmed enrollment in Joess, and placed findings in the Terms Offered as Experimental section. Selected graded per grading basis.

Hannah Johnson (hjh9x) (09/28/26 2:02 pm): Was taught an EC at the 5000 level, however the instructor aims to teach this at an undergrad level (4000). Per email from Cecil.

Key: 10555

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 09/23/26 6:44 am

Viewing: **BUS 5151 : Professional and Technical Sales**

Last edit: 09/25/26 8:55 am

Changes proposed by: Cecil Eng Huang Chua (cecq8z)

Programs referencing this course

IST-BS: Information Science and Tch BS

Requested Effective Date	Fall 2027
Department	Jaggi School of Business (RBUS&IT)
Discipline	Business (BUS)
Course Number	5151
Title	Professional and Technical Sales
Abbreviated Course Title	Pro and Tech Sales
Co-Listed Course	

Catalog Description

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
10. CAT entry
11. Peoplesoft

Approval Path

1. 09/23/26 3:45 pm Cassie Elrod (cassa): Approved for RBUS&IT Chair
2. 10/05/26 8:50 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:37 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC

Agenda post

This course provides an overview of the sales process and the promotion of technology-related products and services. Students will gain a working knowledge of the personal selling process and focus on creating value and finding innovative solutions for customers.

Prerequisite(s):

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 Yes

Grading Basis Graded

Repeatable No

Justification

Formerly BUS 5001.10
SP 25 4 enrolled
SP 26 3+2(distance) enrolled

Jaggi industry advisory board recommends having course

Semesters Previously Offered

Term(s) Offered as

experimental

SP 2025 with 4 enrolled

SP 2026 with 5 enrolled

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (09/25/26 8:50 am): Removed none from prereq and coreq sections. Selected graded for the grading basis.

Hannah Johnson (hjh9x) (09/25/26 8:55 am): Checked Joess for enrollment numbers in the EC course added information to the Term Offered as Experimental section.

Key: 10556

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 09/19/26 7:08 am

Viewing: **BUS 5970 : Creativity, Innovation, and Design Thinking**

Last edit: 10/05/26 8:52 am

Changes proposed by: Cecil Eng Huang Chua (cecq8z)

Requested Effective Date	Fall 2027
Department	Jaggi School of Business (RBUS&IT)
Discipline	Business (BUS)
Course Number	5970
Title	Creativity, Innovation, and Design Thinking
Abbreviated Course Title	CID Thinking
Co-Listed Course	

Catalog Description

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
10. CAT entry
11. Peoplesoft

Approval Path

1. 09/19/26 12:07 pm Cassie Elrod (cassa): Approved for RBUS&IT Chair
2. 10/05/26 8:53 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:38 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC

Agenda post

This course examines the foundational concepts of creativity, innovation, and design thinking, aiming to equip students with the necessary skills to address complex problems that arise from the intersection of business and technology. Throughout the course, we will explore frameworks that enhance creativity and ideation at both the individual and group levels, elucidate common practices in the management of innovation, and apply design thinking methodologies to real-world challenges.

Prerequisite(s):

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

AS BUS 5001.008
Enrollment SP25 14 (in-class) +1 (distance)
Enrollment SP26 3(in-class) + 2 (distance)

Semesters Previously Offered

Term(s) Offered as experimental

SP 2025 with 15 enrolled

SP 2026 with 7 enrolled with one withdrawn (total of 6)

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (09/25/26 9:03 am): Removed the word none from the prereq and coreq sections. Selected graded per grading basis. Checked Joess for information to add to the terms offered as experimental section.

Hannah Johnson (hjh9x) (10/05/26 8:52 am): Made catalog description into paragraph format and removed list of numbers from the paragraph.

Key: 10554

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 10:22 am

Viewing: CER ENG 2110 : Atomic Structure Of Crystalline Ceramics

Last edit: 09/28/26 10:22 am

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

MAT S E-MI: Materials Science and Engineering Minor

Other Courses referencing this course

In The Catalog Prerequisites:

CER ENG 2120 : Introduction To Glass Science And Technology

CER ENG 3410 : Characterization of Materials

CER ENG 3415 : Characterization of Materials

CER ENG 4410 : Introduction to Integrated Computational Materials Engineering

MET ENG 3415 : Characterization of Materials

SEMI ENG 3415 : Characterization of Materials

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	2110

Title

Atomic Structure Of Crystalline Ceramics

In Workflow

1. **RMATSENG 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. 09/28/26 10:30 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 8:58 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:38 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson

Abbreviated Course Title: Atom St-Crystalline Cer

Co-Listed Course

(hjh9x): Approved for Pending CCC Agenda post

Catalog Description

The crystal-chemical principles used to design and manufacture materials with specified properties are developed and applied to oxides, clays, silicates and other nonmetallic compounds.

Prerequisite(s):

A grade of "C" or better in Chem 1310.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: Yes ~~No~~

Elective for Majors: No

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

Justification

Added general chemistry 1 as pre-requisite.

Semesters Previously Offered

Term(s) Offered as

experimental

Is this a MOTR Course?

Reviewer Comments

Key: 5692

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 10:25 am

Viewing: CER ENG 2120 : Introduction To Glass Science And Technology

Last edit: 09/28/26 10:25 am

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	2120
Title	Introduction To Glass Science And Technology
Abbreviated Course Title	Intro Glass Sci & Tech
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 09/28/26 10:30 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 8:59 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:38 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:26 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

A study of the atomic-level structure of oxide glasses and the relationships between composition, properties and structure of glass-forming systems. Simple rate processes will be introduced to explain temperature-dependent properties.

Prerequisite(s):

A ~~"C" or better~~ grade of "C" or better in Cer Eng 2110.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: Yes ~~No~~

Elective for Majors: No

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

Justification

Revised pre-requisite wording and corrected indication for required for majors.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Key: 5694

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 10:10 am

Viewing: CER ENG 2200 ~~3230~~ : Thermodynamics of Materials

Also listed as: ~~CER ENG 3230~~ / MET ENG 2200 / ~~MET ENG 3230~~ / SEMI ENG 2200 / ~~SEMI ENG 3230~~

Formerly known as: CER ENG 3230 / MET ENG 3230 / SEMI ENG 3230

Last approved: 06/29/25 6:04 am

Last edit: 10/15/26 8:16 am

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CER ENG 2200:

CR ENG-BS: Ceramic Engineering BS

MET ENG 2200:

MT ENG-BS: Metallurgical Engineering BS

Other Courses referencing this course

In The Catalog Prerequisites:

CER ENG 3230:

BME 3100 : Fundamentals of Transport in Biomedical Engineering

CER ENG 3220 : Phase Equilibria

CER ENG 4410 : Introduction to Integrated Computational Materials Engineering

CER ENG 5250 : Refractories

CHEM ENG 5315 : Corrosion and Its Prevention

MET ENG 3130 : Metals Microstructural Development

MET ENG 4350 : Process Metallurgy Applications

In Workflow

1. **RMATSENG 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. 03/02/26 2:54 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 03/04/26 2:16 pm Crystal Wilson (wilsoncry): Rollback to Initiator
3. 03/04/26 2:32 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
4. 03/13/26 4:05 pm

MET ENG 4450 : Steelmaking
MET ENG 5310 : Corrosion and Its Prevention
MET ENG 5450 : Advanced Steelmaking
MET ENG 5480 : Refining Of Metals

Requested Effective Date	Fall 2027	
Department	Materials Science & Engineering (RMATSENG)	
Discipline	Ceramic Engineering (CER ENG)	
Course Number	2200 ~~3230~~	
Title	Thermodynamics of Materials	
Abbreviated Course Title	Thermodynamics of Materials	
Co-Listed Course	~~MET ENG 3230~~	Department ~~Materials Science & Engineering (RMATSENG)~~
	~~SEMI ENG 3230~~	Department ~~Materials Science & Engineering (RMATSENG)~~
	MET ENG 2200	Department Materials Science & Engineering (RMATSENG)
	SEMI ENG 2200	Department Materials Science & Engineering (RMATSENG)

Catalog Description

Hannah Johnson (hjh9x): Rollback to Initiator
5. 09/28/26 10:30 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
6. 10/19/26 9:35 am Hannah Johnson (hjh9x): Approved for CCC Secretary
7. 10/21/26 11:09 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
8. 10/26/26 8:26 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Jun 29, 2025 by David Lipke (lipke)

Basic thermodynamic concepts are applied to materials. Calculations involving enthalpy, entropy, and Gibbs' free energy are studied. Inter-relationships among properties are emphasized. Fundamental concepts of phase equilibria are presented.

Prerequisite(s):
A grade of "C" or better in ~~either Met Eng 1210 or~~ Chem 1320.

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

Course serves as a pre-requisite for a course with a lower number (Cer Eng 3220). Renumbering to 2200 reflects its status as a sophomore-level course in the sequence.

Removed Met Eng 1210 as pre-req (not offered in 9+ years)

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Crystal Wilson (wilsoncry) (03/04/26 2:16 pm): Rollback: Rollback per department request to change course number for co-listed courses.

Hannah Johnson (hjh9x) (03/13/26 4:05 pm): Rollback: Rolling back because this is an affecting change; the deadline for a CC form effective for Fall 2026, was in Oct. 2025.

Hannah Johnson (hjh9x) (10/15/26 8:16 am): Updated effective date from Fall 2026 to Fall 2027 per CCC Deadlines.

Key: 5701

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 10:26 am

Viewing: CER ENG 3220 : Phase Equilibria

Last approved: 11/20/17 3:28 am

Last edit: 09/28/26 10:26 am

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

Other Courses referencing this course

In The Catalog Prerequisites:

CER ENG 4250 : Thermal Properties Of Ceramics

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	3220
Title	Phase Equilibria
Abbreviated Course Title	Phase Equilibria
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 03/05/26 11:21 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 03/16/26 3:25 pm Hannah Johnson (hjh9x): Rollback to Initiator
3. 09/28/26 10:30 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
4. 10/19/26 9:22 am

Hannah Johnson (hjh9x): Approved for CCC Secretary

5. 10/21/26 11:09 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
6. 10/26/26 8:26 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Oct 21, 2016 by F. Scott Miller (smiller)
2. Nov 20, 2017 by F. Scott Miller (smiller)

The study of unary, binary and ternary inorganic, phase equilibrium systems with examples for solving practical engineering problems.

Prerequisite(s):

A grade of "C" or better in Cer Eng 2200. ~~3230.~~

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 prerequisite from Cer Eng 3230 to Cer Eng 2200 due to renumbering.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (03/16/26 3:25 pm): Rollback: Rolled back because the change in prereq course is an affecting change and can be resubmitted for Fall 2027, with any DC forms that are affected.

Key: 2160

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 4:18 pm

Viewing: CER ENG 3240 : Applied Glass Forming

Formerly known as: CER ENG 2240

Last approved: 10/29/18 5:56 am

Last edit: 10/07/26 1:08 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CER ENG 3240:

CR ENG-BS: Ceramic Engineering BS

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	3240
Title	Applied Glass Forming
Abbreviated Course Title	Applied Glass Forming
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 09/28/26 4:22 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/07/26 1:15 pm Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/15/26 3:56 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:26 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

History

1. Oct 21, 2016 by F. Scott Miller (smiller)
2. Apr 3, 2017 by F. Scott Miller (smiller)
3. Oct 29, 2018 by F. Scott Miller (smiller)

Examines the impact ~~properties and behavior~~ of chemistry on the properties and behavior of molten glass during the application of ~~along with~~ basic and advanced forming techniques. Explores forming techniques that include ~~techniques, including~~ off-hand shaping, molding, casting, fiber and tube pulling, and torchwork. Additional topics covered include tempering, 3D printing of glass, and refractory-glass interactions. ~~molding and casting.~~

Prerequisite(s):

A grade of "C" or better in Chem 1320 or permission of instructor. ~~Cer Eng 2210.~~

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	2 ~~1~~
Laboratory	1

Total: 3 ~~2~~

Required for Majors: No

Elective for Majors: Yes

Communication Intensive: No

Communication: No

Emphasized

Grading Basis Graded

Repeatable No

Justification

Increases credit hours from 2 to 3 and updates course description to include additional topic coverage. Updates pre-requisite for accessibility.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/02/26 12:15 pm): Selected no for CI and CE.

Hannah Johnson (hjh9x) (10/06/26 8:39 am): Per David Lipke: "The credit hours are increasing from 2 to 3... While there will be additional content to account for the added lecture time, the core course content is not changing."

Hannah Johnson (hjh9x) (10/07/26 1:08 pm): Corrected past tense for 'explored' in the catalog description per email from David Lipke.

Course Change Request

New Course Proposal

Date Submitted: 09/28/26 10:11 am

Viewing: CER ENG 3320 : Defects and Transport in Ceramics

Last edit: 10/05/26 9:14 am

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	3320
Title	Defects and Transport in Ceramics
Abbreviated Course Title	Defects Transport Ceramics
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 03/03/26 8:49 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 03/20/26 8:07 am Crystal Wilson (wilsoncry): Rollback to Initiator
3. 09/28/26 10:30 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
4. 10/05/26 9:14 am

Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 10/14/26 2:37 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
6. 10/26/26 8:26 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

Introduces defects in ceramic materials and their roles in mass and charge transport. Topics include defect chemistry and equilibria, diffusion mechanisms, ionic and electronic conduction, and grain-boundary effects. Applications to ionic conductors, semiconducting oxides, and functional ceramics such as batteries, fuel cells, and sensors are emphasized.

Prerequisite(s):

A grade of "C" or better in Cer Eng 2110.

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 replaces Cer Eng 3210 Thermal Processes in Ceramics in the Cer Eng curriculum. The revised title and course description better reflect the content of this course and its purpose in the curriculum.

Semesters Previously Offered

Term(s) Offered as experimental

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (03/06/26 2:25 pm): Added graded to grading basis.

Crystal Wilson (wilsoncry) (03/20/26 8:07 am): Rollback: Will need to be submitted for fall 2027 with the DC.

Hannah Johnson (hjh9x) (10/05/26 9:14 am): Updated quotes around the letter C in the prereq.

Key: 10383

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 2:44 pm

Viewing: CER ENG 3415 ~~3410~~ : Characterization of Materials ~~Characterization Of Inorganic Solids~~

Also listed as: ~~CER ENG 3410~~ / MET ENG 3415 / ~~SEMI ENG 3410~~ / SEMI ENG 3415

Formerly known as: CER ENG 3410 / SEMI ENG 3410

Last approved: 06/28/25 6:04 am

Last edit: 10/06/26 8:45 am

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CER ENG 3415:

CR ENG-BS: Ceramic Engineering BS

MET ENG 3415:

MT ENG-BS: Metallurgical Engineering BS

Other Courses referencing this course

In The Catalog Prerequisites:

CER ENG 3410:

CER ENG 3417 : Characterization Of Inorganic Solids Laboratory

CER ENG 5115 : X-Ray Diffraction Analysis

Requested Effective Date: Fall 2027

In Workflow

1. **RMATSENG 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. 03/04/26 2:32 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 03/13/26 4:06 pm Hannah Johnson (hjh9x): Rollback to Initiator
3. 09/28/26 2:22 pm Crystal Wilson (wilsoncry): Rollback to Initiator
4. 09/28/26 3:26 pm Sridhar Seetharaman

Department	Materials Science & Engineering (RMATSENG)		
Discipline	Ceramic Engineering (CER ENG)		
Course Number	3415 ~~3410~~		
Title	Characterization of Materials ~~Characterization Of Inorganic Solids~~		
Abbreviated Course Title	Characterization Mater ~~Char Of Inorg Solids~~		
Co-Listed Course	~~SEMI ENG 3410~~	Department	~~Materials Science & Engineering (RMATSENG)~~
	MET ENG 3415	Department	Materials Science & Engineering (RMATSENG)
	SEMI ENG 3415	Department	Materials Science & Engineering (RMATSENG)

(ssgw8): Approved for RMATSENG Chair

5. 10/19/26 9:36 am Hannah Johnson (hjh9x): Approved for CCC Secretary
6. 10/23/26 12:48 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
7. 10/26/26 8:26 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Jun 28, 2025 by David Lipke (lipke)

Catalog Description

Introduction to the principles and practical applications of modern materials characterization techniques. Topics include optical, electron, and scanning probe microscopy; vibrational, optical, and elemental spectroscopy; x-ray diffraction; and thermal analysis. Emphasis is placed on understanding the capabilities and limitations of each method and on interpreting experimental data. ~~X-ray diffraction analysis is emphasized including lattice parameter determination, qualitative and quantitative analysis methods, and sources of error.In addition, the basic principles of other common characterization techniques including electron microscopy, thermal analysis, and energy dispersive spectroscopy are discussed.~~

Prerequisite(s):

A grade of "C" or better in Cer Eng 2110, Met Eng 2110, Semi Eng 2100 or a similar introductory course on structure of materials. ~~solids.~~

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	2 ~~3~~
Laboratory	1

Total: 3

Required for Majors: Yes

Elective for Majors: No

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

Justification

Renumbering to 3415 to be able to co-list across Cer Eng, Semi Eng, and Met Eng (since Met Eng 3410 is not unique).
Revised course title from 'Characterization of Inorganic Solids' to 'Characterization of Materials' to align with other course titles common to MSE programs.
Revised to LEC 2.0 + LAB 1.0 instead of LEC 3.0 for planned laboratory component.
Revised description to better reflect broad topic coverage rather than 'emphasis' on x-ray diffraction.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (03/13/26 4:06 pm): Rollback: Rolling back because this is an affecting change. Affecting CC forms needed to be submitted in Oct. 2025, to be effective for Fall 2026.
Crystal Wilson (wilsoncry) (09/28/26 2:22 pm): Rollback: Rollback per Dr. Lipke's request.
Hannah Johnson (hjh9x) (10/06/26 8:43 am): Per email from David Lipke: "We are adding a laboratory component to the existing lecture course, but keeping it within 3 total credit hours. The old course description was inaccurately written by saying it 'emphasized' only one characterization method, as the course is and has always been a survey of all relevant methods. The course topics have not changed, and the language more accurately reflects this."
Hannah Johnson (hjh9x) (10/06/26 8:45 am): Cer Eng 3417 references CER ENG 3410 however this course was deleted.

Key: 5704

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Inactivation Proposal

Date Submitted: 09/28/26 10:40 am

Viewing: **CER ENG 4230 : Introduction to Composite Materials**

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

Last edit: 10/26/26 9:03 am

Changes proposed by: David Lipke (lipked)

Justification for this inactivation request

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:07 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:38 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:26 am

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

History

1. Oct 7, 2019 by F. Scott Miller (smiller)

Replacing Cer Eng 4230 and Cer Eng 6230 with MS&E 5330 Composite Materials Science and Engineering (LEC 3.0)

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	4230
Title	Introduction to Composite Materials
Abbreviated Course Title	Intro to Composites
Co-Listed Course	

Catalog Description

The objective of this course is to provide students a foundational understanding of process-structure-property relationships in composite materials. Topics will include composite architecture, constituents, and interfaces, fabrication techniques, introduction to macromechanical analytical treatments such as classical lamination theory, and design criteria.

Prerequisite(s):

Senior standing and a grade of "C" or better in Civ Eng 2210 or equivalent.

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

Semesters Previously Offered

Term(s) Offered as experimental:

Previous Course Code:

Is this a MOTR Course?:

Reviewer Comments

Hannah Johnson (hjh9x) (10/26/26 9:03 am): Taught in SP 2020 with 7 enrolled, in SP 2021 with 5 enrolled, and SP 2022 with 5 enrolled.

Key: 4647

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 10:54 am

Viewing: CER ENG 4310 : Ceramic Processing

Last approved: 07/23/24 6:38 am

Last edit: 10/05/26 9:09 am

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	4310
Title	Ceramic Processing
Abbreviated Course Title	Ceramic Processing
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:15 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:39 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:26 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

History

1. May 5, 2021 by F. Scott Miller (smiller)
2. Jul 23, 2024 by David Lipke (lipke)

Theory ~~Rudimentary theory~~ and practice of powder processing, ~~production,~~ ceramic suspension rheology, forming methods, drying, sintering and grain growth. Relation of processing steps to densification and microstructure development.

Prerequisite(s):

Cer Eng 3320. ~~3210 and Junior 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

Updated pre-requisite to Cer Eng 3320, which replaces Cer Eng 3210. Also, minor changes to description wording.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/05/26 9:09 am): Changed effective term to Fall 2027 per when the CC becomes active. Placed period back on the prereq.

Key: 2618

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 3:03 pm

Viewing: CER ENG 4410 : Introduction to Integrated Computational Materials Engineering

Last approved: 05/22/26 6:04 am

Last edit: 09/28/26 3:03 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	4410
Title	Introduction to Integrated Computational Materials Engineering
Abbreviated Course Title	Intro to ICME
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/19/26 9:23 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/21/26 11:09 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:26 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

History

1. Jun 26, 2017 by F. Scott Miller (smiller)
2. Apr 28, 2020 by F. Scott Miller (smiller)
3. May 22, 2026 by David Lipke (lipke)

This course will provide an introduction to different computational tools for studying materials at different length scales. Several atomistic, microscale, and continuum models will be introduced and bridging between different modeling scales will be discussed. This course has a computational laboratory to build models and run simulations.

Prerequisite(s):

A grade of "C" or better in Cer Eng 2200 ~~3230~~ and Math 3304 and in either Comp Sci 1972 and Comp Sci 1982, or Comp Sci 1973 and Comp Sci 1983.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	2
Laboratory	1

Total: 3

Required for Majors	Yes
Elective for Majors	No
Communication Intensive	No
Communication	No

Emphasized

Grading Basis Graded

Repeatable No

Justification

Revised pre-requisite reference to Cer Eng 3230 (now 2200).

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Key: 4413

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 1:50 pm

Viewing: CER ENG 5115 : X-Ray Diffraction Analysis

Last approved: 07/23/24 6:37 am

Last edit: 09/28/26 1:50 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	5115
Title	X-Ray Diffraction Analysis
Abbreviated Course Title	XRD Analysis ~~X-Ray Diffraction Analys~~
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 03/05/26 11:36 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 03/16/26 3:26 pm Hannah Johnson (hjh9x): Rollback to Initiator
3. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
4. 10/19/26 9:31 am

Hannah Johnson (hjh9x): Approved for CCC Secretary

5. 10/23/26 12:48 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
6. 10/26/26 8:26 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Jul 23, 2024 by David Lipke (lipke)

Theory and practical aspects of x-ray diffraction analysis are covered including diffraction theory, qualitative and quantitative analysis techniques, electronic databases, and operation of modern powder diffractometers.

Prerequisite(s):

Preceded or accompanied by Cer Eng 3415. ~~3410.~~

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

Updated prerequisite from Cer Eng 3410 to Cer Eng 3415 due to renumbering.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (03/16/26 3:26 pm): Rollback: Rolled back because the change in prereq course is an affecting change and can be resubmitted for Fall 2027, with any DC forms that are affected.

Key: 178

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 1:52 pm

Viewing: CER ENG 5250 : Refractories

Last edit: 09/28/26 1:52 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

MATEXTR-CT: Materials for Extreme Environments Certificate

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	5250
Title	Refractories
Abbreviated Course Title	Refractories
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 03/05/26 11:22 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 03/16/26 3:26 pm Hannah Johnson (hjh9x): Rollback to Initiator
3. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
4. 10/19/26 9:23 am

Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 10/21/26 11:09 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
6. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

The manufacture, properties, uses, performance, and testing of basic, neutral and acid refractories.

Prerequisite(s):
Cer Eng 2200. ~~3230.~~

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 prerequisite from Cer Eng 3230 to Cer Eng 2200 due to renumbering.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (03/06/26 2:28 pm): Added a period after the prereq.

Hannah Johnson (hjh9x) (03/16/26 3:26 pm): Rollback: Rolled back because the change in prereq course is an affecting change and can be resubmitted for Fall 2027, with any DC forms that are affected.

Key: 5718

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 2:00 pm

Viewing: CER ENG 5310 : Microelectronic Ceramics ~~Advanced Ceramic Processing~~

Last approved: 05/31/21 6:01 am

Last edit: 09/28/26 2:00 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

ADV MAT-CT: Advanced Engineering Materials Certificate

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	5310
Title	Microelectronic Ceramics ~~Advanced Ceramic Processing~~
Abbreviated Course Title	Microelec Ceram ~~Adv Ceramic Processing~~
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/15/26 8:33 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 12:01 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

History

1. May 31, 2021 by tibbettsmg

Materials, processing and design of microelectronic ceramics are covered. Introduction to devices, triaxial ceramics, high aluminas, tape fabrication, metallizations, thick film processing and glass-to-metal seals.

Prerequisite(s):
Cer Eng 3320 ~~3210~~ and Cer Eng 3425. ~~3325.~~

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: No

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

Justification

The previous title 'Advanced Ceramic Processing' is not aligned with the course description narrowly focused on microelectronic ceramics. 'Ceramic Processing' is a distinct course that

covers different topics. Renaming the course and updating prerequisites based on renumbering is appropriate.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Key: 1842

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Inactivation Proposal

Date Submitted: 09/28/26 10:40 am

Viewing: CER ENG 6230 : Composite Materials

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

Last edit: 10/26/26 9:05 am

Changes proposed by: David Lipke (lipked)

Programs referencing this course

MATEXTR-CT: Materials for Extreme Environments Certificate

ADV MAT-CT: Advanced Engineering Materials Certificate

Justification for this inactivation request

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:23 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:39 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:27 am

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

History

1. Oct 7, 2019 by F. Scott Miller (smiller)

Replacing Cer Eng 4230 and Cer Eng 6230 with MS&E 5330 Composite Materials Science and Engineering (LEC 3.0)

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	6230
Title	Composite Materials
Abbreviated Course Title	Composite Materials
Co-Listed Course	

Catalog Description

The objective of this course is to provide students an advanced understanding of process-structure-property relationships in composites. Topics will include composite architecture, constituents, interfaces, fabrication techniques, analytical and numerical micromechanics and macromechanics, design criteria, and contemporary issues in composite materials.

Prerequisite(s):

Graduate Standing.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: No

Communication Intensive:

Communication Emphasized:

Grading Basis: Graded

Repeatable: No

Justification

Semesters Previously Offered

Term(s) Offered as experimental:

Previous Course Code:

Is this a MOTR Course?:

Reviewer Comments

Hannah Johnson (hjh9x) (10/05/26 9:22 am): MATEXTR-CT and ADV MAT-CT are both inactivated certificates; therefore the CER ENG 6230 is okay to proceed with its inactivation.

Hannah Johnson (hjh9x) (10/26/26 9:05 am): Taught SP 2020 with 3 enrolled, SP 2021 with 3 enrolled, and SP 2022 with 2 enrolled.

Key: 2422

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Inactivation Proposal

Date Submitted: 09/28/26 2:06 pm

Viewing: **CER ENG 6260 : Advanced Electrical Properties of Ceramics**

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

Last edit: 10/26/26 9:06 am

Changes proposed by: David Lipke (lipked)

Justification for this inactivation request

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:26 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:40 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:27 am

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

History

1. May 24, 2016 by Denise Eddings (eddings)

Has not been offered in 10+ years.

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	6260
Title	Advanced Electrical Properties of Ceramics
Abbreviated Course Title	Adv Elec Properties of Cer
Co-Listed Course	

Catalog Description

The application of ceramic chemistry and physics to the development and evaluation of electronic, dielectric, magnetic, and optical properties. Emphasis is placed on the relationships between properties and crystal structure, defects, grain boundary nature, and microstructure.

Prerequisite(s):

Grade of "C" or better in Physics 2305.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours

Credit Type	Credit Hours
Lecture	3
Laboratory	1

Total: 4

Required for Majors: No

Elective for Majors: No

Communication Intensive:

Communication Emphasized:

Grading Basis: Graded

Repeatable: No

Justification

Semesters Previously Offered

Term(s) Offered as experimental:

Previous Course Code:

Is this a MOTR Course?:

Reviewer Comments

Hannah Johnson (hjh9x) (10/05/26 9:25 am): Taught once in 2021 with one student enrolled.

Hannah Johnson (hjh9x) (10/26/26 9:06 am): Taught in SP 2021 with 1 enrolled.

Key: 1518

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 3:02 pm

Viewing: CER ENG 6410 : Advanced Integrated Computational Materials Engineering

Last approved: 10/10/17 3:29 am

Last edit: 10/02/26 1:35 pm

Changes proposed by: David Lipke (lipked)

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Ceramic Engineering (CER ENG)
Course Number	6410
Title	Advanced Integrated Computational Materials Engineering
Abbreviated Course Title	Advanced ICME
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:26 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:37 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

History

1. Oct 10, 2017 by F. Scott Miller (smiller)

Students will learn of different computational tools for studying materials at different length scales. The bridging between different modeling scales will be discussed. This course has a computational laboratory to build models and run simulations. Students will complete a final project by integrating two length-scale models.

Prerequisite(s):

A grade of "B" or better ~~grade~~ in Math 3304 or graduate standing. ~~3304.~~

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

Revised pre-requisite language.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/02/26 1:35 pm): Selected no for CI and CE.

Key: 4414

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 04/17/26 10:36 am

Viewing: EDUC 1240 : Technology and AI Use in Education

Last edit: 10/07/26 9:01 am

Changes proposed by: Beth Kania-Gosche (bakm75)

Programs referencing this course	EDUC-BS: Education BS TEACH-CTU: Teaching and Learning Undergraduate Certificate

Requested Effective Date	Fall 2027
Department	Education (REDUCATION)
Discipline	Education (EDUC)
Course Number	1240
Title	Technology and AI Use in Education
Abbreviated Course Title	Education Technology
Co-Listed Course	

Catalog Description

In Workflow

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

Approval Path

1. 04/30/26 8:16 am Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
2. 10/19/26 11:14 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:39 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved

for Pending CCC Agenda post

This course provides an introduction to the responsible use of technology and artificial intelligence (AI) in educational contexts. Students learn about current legal and ethical obligations related to data privacy and digital tools. Through national technology and educator standards, learners develop foundational skills for making informed decisions about when and how technology can effectively support teaching and learning.

Prerequisite(s):

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 in response to the provost's initiative regarding AI competency, as well as aligning our program with the Core 60 elementary pathway required by state law by 2028.
We will start with the course as an elective for 2027, with a plan to require it in 2028 when required by state law.

Semesters Previously Offered

Term(s) Offered as experimental

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (05/01/26 9:10 am): Selected graded for grading basis.

Hannah Johnson (hjh9x) (10/07/26 9:01 am): Selected yes for required for majors since it is listed on the EDUC-BS in their core curriculum. And selected no for elective for majors.

Key: 10409

Preview Bridge

Course Change Request

Date Submitted: 04/15/26 2:49 pm

Viewing: EDUC 2211 ~~3211~~ : Child Development

Also listed as: ~~EDUC 3211~~

Formerly known as: EDUC 3211

Last approved: 11/28/22 6:01 am

Last edit: 09/28/26 11:20 am

Changes proposed by: Beth Kania-Gosche (bakm75)

Programs referencing this course

EDUC 2211:

EDUC-BS: Education BS

EDYC-CTU: Undergraduate Certificate in Education of Young Children CTU

Requested Effective Date	Fall 2027
Department	Education (REDUCATION)
Discipline	Education (EDUC)
Course Number	2211 ~~3211~~
Title	Child Development
Abbreviated Course Title	Child Development
Co-Listed Course	

Catalog Description

In Workflow

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

Approval Path

1. 12/19/24 2:23 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
2. 12/19/24 4:08 pm jm558v: Rollback to REDUCATION Chair for CCC Secretary
3. 02/20/25 10:17 am Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
4. 02/20/25 11:12 am jm558v: Approved for CCC Secretary

5. 02/20/25 12:36 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
6. 03/21/25 2:27 pm jm558v: Approved for Pending CCC Agenda post
7. 04/01/25 10:31 am jm558v: Rollback to REDUCATION Chair for CCC Meeting Agenda
8. 04/10/25 12:38 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
9. 04/15/25 3:54 pm jm558v: Rollback to REDUCATION Chair for CCC Secretary
10. 07/23/25 2:36 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
11. 07/24/25 3:28 pm Crystal Wilson (wilsoncry): Rollback to Initiator
12. 11/14/25 12:28 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
13. 11/25/25 12:11 pm jm558v: Approved for CCC Secretary

14. 12/16/25 2:44 pm Cecil Eng Huang Chua (cchua): Rollback to CCC Secretary for Social Sciences DSCC Chair
15. 12/18/25 9:24 am Crystal Wilson (wilsoncry): Rollback to Initiator
16. 04/15/26 3:13 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
17. 10/19/26 11:16 am Hannah Johnson (hjh9x): Approved for CCC Secretary
18. 10/19/26 11:39 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
19. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Jan 18, 2019 by ershenb
2. Feb 13, 2021 by Beth Kania-Gosche (bakm75)
3. Nov 28, 2022 by Beth Kania-Gosche (bakm75)

This course explores characteristics of children from birth through adolescence, ~~to age eight,~~ including language acquisition, creative expression, and physical, cognitive, and social-emotional development. Students explore major developmental theories, research, and contemporary issues affecting children and adolescents, with particular attention to learning, identity development, and the role of educators and caregivers in supporting healthy growth across developmental stages. ~~The impact of trauma on development will be emphasized.The connection of cultural differences to development will also be discussed.~~

Prerequisite(s):

Education degree or undergraduate certificate declared. ~~Educ 1040 or Educ 1055 or Psych 1101.~~

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: Yes

Elective for Majors: No ~~Yes~~

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

Justification

This course is offered at many community colleges at the 200 level. The Missouri legislature requires that all public institutions have the same 60 hour pathway for elementary students. Other elementary programs use child development rather than lifespan development, so we are adjusting our class and curriculum so we meet the new state law.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

jm558v (12/19/24 4:08 pm): Rollback: Rollback per needing to be submitted with DC forms.

jm558v (04/01/25 10:31 am): Rollback: Rollback per this is an affecting change. The requested effective date should be Spring 2026 and needs to be submitted with both DC forms.

jm558v (04/10/25 1:14 pm): Added "no" for communication emphasized and communication intensive per department request.

jm558v (04/15/25 3:54 pm): Rollback: Rollback per this form needs to be resubmitted once the DC is out of workflow, so the the forms can be submitted together for Fall 2026.

Crystal Wilson (wilsoncry) (07/24/25 3:28 pm): Rollback: Form is being rolled back because we need the EDUC-BS and EDYC-CTU DC forms to be submitted with the CC form.

Cecil Eng Huang Chua (cchua) (12/16/25 2:44 pm): Rollback: Registrar needs to do something

Crystal Wilson (wilsoncry) (12/18/25 9:24 am): Rollback: This is considered an affecting change. The deadline for affecting CC changes for fall 2026 has passed.

Hannah Johnson (hjh9x) (04/21/26 1:08 pm): Selected no for required for majors per email from Beth Kania-Gosche. The course is not changing by more than 50%.

Hannah Johnson (hjh9x) (05/05/26 11:31 am): Selected yes for required for majors, selected no for elective for majors.

Course Change Request

Date Submitted: 03/10/26 8:19 am

Viewing: EDUC 2430 ~~3430~~ : Diverse Literature for Children

Also listed as: ~~EDUC 3430~~

Formerly known as: EDUC 3430

Last approved: 11/13/25 6:04 am

Last edit: 09/28/26 11:21 am

Changes proposed by: Beth Kania-Gosche (bakm75)

Programs referencing this course

EDUC 2430:

EDUC-BS: Education BS

TEACH-CTU: Teaching and Learning Undergraduate Certificate

EDYC-CTU: Undergraduate Certificate in Education of Young Children

CTU

Requested Effective Date	Fall 2027
Department	Education (REDUCATION)
Discipline	Education (EDUC)
Course Number	2430 ~~3430~~
Title	Diverse Literature for Children
Abbreviated Course Title	Literature for Children
Co-Listed Course	

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
11. Peoplesoft

Approval Path

1. 04/15/26 3:13 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
2. 10/19/26 11:17 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:39 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:29 am Hannah Johnson (hjh9x): Approved

Catalog Description

for Pending CCC Agenda post

History

1. Mar 26, 2018 by Michelle Schwartze (schwartzem)
2. Feb 4, 2019 by Kelly Carter (carterke)
3. Feb 8, 2021 by Beth Kania-Gosche (bakm75)
4. Nov 13, 2025 by jm558v

In this course, students will critically examine children's fiction and nonfiction texts for use in early childhood and elementary classrooms and libraries. The use of children's books in interdisciplinary instruction will be emphasized, including integration of STEM, art, drama, music, and movement.

Prerequisite(s):
Educ 1074.

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 No

Emphasized

Grading Basis Graded

Repeatable No

Justification

The Missouri legislature has required that elementary programs across the state create a Core 60 pathway that is universally transferable. This means we need to adjust our course numbers. This course is commonly taught at community colleges and will be a part of the Core 60, so it needs to be adjusted to a 200 level.

This committee has been working statewide since November, so the progress does not match up with the catalog deadlines unfortunately.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (04/21/26 1:10 pm): Selected No for required for majors and yes for elective for majors.

Hannah Johnson (hjh9x) (04/23/26 8:37 am): Selected Spring 2027 due to this being an affecting change.

Hannah Johnson (hjh9x) (05/05/26 11:38 am): Updated effective term to fall 2027.

Key: 4519

Preview Bridge

Course Change Request

Date Submitted: 04/29/26 4:47 pm

Viewing: EDUC 3164 ~~1164~~ : Teacher Field Experience II

Also listed as: ~~EDUC 1164~~

Formerly known as: EDUC 1164

Last approved: 07/01/25 6:03 am

Last edit: 09/28/26 11:21 am

Changes proposed by: Beth Kania-Gosche (bakm75)

Catalog Pages referencing this course

EDUC 3164:

Teacher Education and Certification

Programs referencing this course

EDUC 1164:

ECON-BA: Economics BA

EDUC 3164:

PHYSIC-BS: Physics BS

AP MATH-BS: Applied Mathematics BS

BIO SC-BA: Biological Sciences BA

BUS&MS-BS: Business and Mgmt Systems BS

CHEM-BA: Chemistry BA

HIST-BA: History BA

PSYCH-BA: Psychological Science BA

EDUC-BS: Education BS

ENV SCI-BS: Environmental Science BS

Requested Effective Fall 2027

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
11. Peoplesoft

Approval Path

1. 04/30/26 8:17 am Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
2. 10/19/26 11:13 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:40 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved

Date

Department Education (REDUCATION)

Discipline Education (EDUC)

Course Number 3164 ~~1164~~

Title
Teacher Field Experience II

Abbreviated Course Title Teach Field Exp II

Co-Listed Course

for Pending CCC Agenda post

History

1. Jan 18, 2019 by ershenb
2. Oct 28, 2019 by Beth Kania-Gosche (bakm75)
3. Jul 1, 2025 by jm558v

Catalog Description
Students will spend 60 clock hours in classrooms, including experiences in diverse settings. Students will teach lessons, work with learners, and otherwise assist in the classroom to which they are assigned. A background check is required for enrollment in this course.

Prerequisite(s):
Educ 1074, Educ 1104, and Educ 3216.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Laboratory	2

Total: 2

Required for Majors Yes

Elective for Majors No

Communication Intensive No

Communication Emphasized No

Grading Basis Graded or Satisfactory, Non-elective

Repeatable No

Justification

Because of the 60 hour pathway legislation, we need to change this course to a 3000 level because it is not part of the first two years of community college, transfer coursework. This is one of a series of changes we are making to our program in anticipation of those requirements. We will be making the individual course changes and then submitting one DCC form to capture all of them.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Key: 770

Preview Bridge

Course Change Request

Date Submitted: 05/04/26 12:48 pm

Viewing: EDUC 3216 : ~~Instructional~~ Literacy in the Content Area

Formerly known as: EDUC 2216

Last approved: 11/13/25 6:04 am

Last edit: 09/28/26 11:21 am

Changes proposed by: Beth Kania-Gosche (bakm75)

Catalog Pages referencing this course

EDUC 3216:

Teacher Education and Certification

Programs referencing this course

EDUC 3216:

PHYSIC-BS: Physics BS

AP MATH-BS: Applied Mathematics BS

BIO SC-BA: Biological Sciences BA

BUS&MS-BS: Business and Mgmt Systems BS

CHEM-BA: Chemistry BA

HIST-BA: History BA

PSYCH-BA: Psychological Science BA

EDUC-BS: Education BS

TEACH-CTU: Teaching and Learning Undergraduate Certificate

ECON-BA: Economics BA

ENV SCI-BS: Environmental Science BS

Other Courses referencing this course

In The Catalog Prerequisites:

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
11. Peoplesoft

Approval Path

1. 05/04/26 12:49 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
2. 10/19/26 11:18 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:40 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved

EDUC 3216:

EDUC 1164 : Teacher Field Experience II

EDUC 3164 : Teacher Field Experience II

EDUC 3203 : Introduction to STEM Education

EDUC 3280 : Instructional Strategies in the Content Area

EDUC 4375 : Cross Categorical Special Education

EDUC 4380 : Methods in Cross-Categorical Special Ed

for Pending CCC Agenda post

History

1. Oct 31, 2016 by Petra Dewitt (dewittp)
2. Feb 4, 2019 by Kelly Carter (carterke)
3. Feb 8, 2021 by Beth Kania-Gosche (bakm75)
4. Nov 13, 2025 by jm558v

Requested Effective Date	Fall 2027
Department	Education (REDUCATION)
Discipline	Education (EDUC)
Course Number	3216
Title	~~Instructional~~ Literacy in the Content Area
Abbreviated Course Title	Teach Literacy in Cont
Co-Listed Course	

Catalog Description

Vocabulary, comprehension, the writing process and other literacy skills will be reinforced. Classroom content texts will be evaluated. Students will create meaningful learning experiences and resources for a diverse student population. Differentiated instruction will be introduced, with specific focus on English Language Learners and struggling reader.

Prerequisite(s):

Educ 1074.

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

Title adjusted to be clearer to students and more accurately represent course content.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Key: 1758

Preview Bridge

Course Change Request

Date Submitted: 05/04/26 12:47 pm

Viewing: EDUC 3220 : Teaching Science ~~Teaching Science in the Elementary and Early Childhood Classroom~~

Last approved: 07/01/25 6:04 am

Last edit: 10/19/26 11:20 am

Changes proposed by: Beth Kania-Gosche (bakm75)

Programs referencing this course

EDUC-BS: Education BS

Requested Effective Date	Fall 2027
Department	Education (REDUCATION)
Discipline	Education (EDUC)
Course Number	3220
Title	Teaching Science ~~Teaching Science in the Elementary and Early Childhood Classroom~~
Abbreviated Course Title	Teaching Science
Co-Listed Course	

Catalog Description

In Workflow

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

Approval Path

1. 05/04/26 12:49 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
2. 10/19/26 11:20 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:40 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved

for Pending CCC Agenda post

History

1. Jul 3, 2018 by Michelle Schwartze (schwartzem)
2. Feb 4, 2019 by Kelly Carter (carterke)
3. Feb 13, 2021 by Beth Kania-Gosche (bakm75)
4. Jul 1, 2025 by jm558v

Students will learn to introduce children to scientific inquiry. Students will model higher order thinking skills and effective questioning techniques to guide learners' critical thinking by incorporating the engineering design process. Students will identify uses of technology for teaching science and develop informal and formal science assessments.

Prerequisite(s):

Educ 1074.

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 No

Emphasized

Grading Basis Graded

Repeatable No

Justification

Course title adjusted to remove specific age groups since course is also used for middle school.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/19/26 11:20 am): Selected no for required for majors, and selected yes for elective for majors.

Key: 4517

Preview Bridge

Course Change Request

Date Submitted: 07/28/26 1:25 pm

Viewing: EDUC 3221 : Methods of Teaching Math

Also listed as: ~~MATH 3921~~

Formerly known as: EDUC 2221 / MATH 3921

Last approved: 07/01/25 6:04 am

Last edit: 10/19/26 11:21 am

Changes proposed by: John Singler (singlerj)

Programs referencing this course

EDUC 3221:

EDUC-BS: Education BS

Requested Effective Date	Fall 2027		
Department	Education (REDUCATION)		
Discipline	Education (EDUC)		
Course Number	3221		
Title	Methods of Teaching Math		
Abbreviated Course Title	Mthd Tching Math		
Co-Listed Course	~~MATH 3921~~	Department	~~Mathematics & Statistics (RMATHEMA)~~

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
11. Peoplesoft

Approval Path

1. 07/29/26 8:02 am Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
2. 10/19/26 11:22 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 3:33 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved

Catalog Description

for Pending CCC Agenda post

History

1. May 6, 2016 by Mandy Sue Welch (welchms)
2. Dec 14, 2016 by Petra Dewitt (dewittp)
3. Feb 4, 2019 by Kelly Carter (carterke)
4. Feb 8, 2021 by Beth Kania-Gosche (bakm75)
5. Jul 31, 2024 by jm558v
6. Jul 1, 2025 by jm558v

The course presents an overview of how children learn mathematics, various techniques in teaching mathematics, and examples of applying these techniques to specific mathematical concepts (such as geometry, measurement, basic operations, statistics and probability, etc.).

Prerequisite(s):

Math 1120 or Math 1140; Educ 1074.

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

Our department faculty have not taught mathematics education courses in a long time. Due to faculty reductions and changes in faculty interests, our department does not have plans to move in this direction. The S&T Department of Education can continue to offer mathematics education courses - they do not need the math co-list.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/19/26 11:21 am): Selected no for required for majors and yes for elective for majors.

Key: 2541

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Inactivation Proposal

Date Submitted: 07/16/26 2:37 pm

Viewing: **MATH 5222 : Vector And Tensor Analysis**

Last approved: 12/25/25 6:04 am

Last edit: 10/26/26 9:09 am

Changes proposed by: John Singler (singlerj)

Other Courses referencing this course

In The Catalog Prerequisites:

MATH 5512 : Introduction To Differential Geometry

Justification for this inactivation request

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. 07/16/26 2:42 pm John Singler (singlerj): Approved for RMATHEMA Chair
2. 10/15/26 9:08 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 3:25 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved

for Pending CCC Agenda post

History

1. Dec 25, 2025 by Crystal Wilson (wilsoncry)

We have not offered this course in a long time. Due to faculty changes - and substantial reductions to our faculty - we do not plan to offer this course again.

Requested Effective Date	Fall 2027
Department	Mathematics & Statistics (RMATHEMA)
Discipline	Mathematics (MATH)
Course Number	5222
Title	Vector And Tensor Analysis
Abbreviated Course Title	Vector & Tensor Analysis
Co-Listed Course	

Catalog Description

Vector algebra, vector differential and integral calculus, line and surface integrals, theorems of Stokes and Gauss, tensor algebra and tensor analysis, applications to problems in kinematics, elasticity theory, fluid mechanics, electromagnetic theory, relativity theory.

Prerequisite(s):

Math 2222 and Math 3108.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

Justification

Semesters Previously Offered

Term(s) Offered as experimental

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/26/26 9:09 am): Taught in SP 2015 with 12 enrolled and SP 2016 with 10 enrolled.

Key: 8792

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 3:04 pm

Viewing: MET ENG 3130 : Metals Microstructural Development

Formerly known as: MET ENG 2120

Last approved: 06/30/14 3:55 am

Last edit: 09/28/26 3:04 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

MET ENG 3130:

MT ENG-BS: Metallurgical Engineering BS

Other Courses referencing this course

In The Catalog Prerequisites:

MET ENG 3130:

MET ENG 2125 : Microstructural Development Laboratory
MET ENG 4320 : Steels And Their Treatment
MET ENG 4637 : Material Selection, Fabrication, And Failure
MET ENG 5110 : High Temperature And Corrosion Resistant Alloys
MET ENG 5330 : Nonferrous Alloys
MET ENG 5520 : Electron Microscopy
MET ENG 6320 : Advanced Steels and Their Treatment

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)

In Workflow

1. **RMATSENG 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. 03/05/26 11:25 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 03/05/26 11:43 am Crystal Wilson (wilsoncry): Rollback to Initiator
3. 03/05/26 11:48 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
4. 03/16/26 3:27 pm

Course Number 3130

Title
Metals Microstructural Development

Abbreviated Course Title: Metal Microstructure ~~Metals Microstructrl~~ Dev

Co-Listed Course

Catalog Description

Fundamentals of microstructural developments as relating to solid solutions, solidification and transformations; phase diagrams; case studies.

Prerequisite(s):
A ~~"C" or better~~ grade of "C" or better in Met Eng ~~MET ENG~~ 2110; accompanied or preceded by Met Eng 2200. ~~CER ENG 3230.~~

Corequisite(s):

Credit Hours

Hannah Johnson (hjh9x): Rollback to Initiator
5. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
6. 10/19/26 9:27 am Hannah Johnson (hjh9x): Approved for CCC Secretary
7. 10/21/26 11:10 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
8. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Jun 30, 2014 by F. Scott Miller (smiller)

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors Yes ~~No~~

Elective for Majors No

Communication Intensive No

Communication Emphasized No

Grading Basis Graded

Repeatable No

Justification

Updated prerequisite from Cer Eng 3230 to Met Eng 2200 due to renumbering.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Crystal Wilson (wilsoncry) (03/05/26 11:43 am): Rollback: Rollback to department for updates per department request.

Hannah Johnson (hjh9x) (03/16/26 3:27 pm): Rollback: Rolled back because the change in prereq course is an affecting change and can be resubmitted for Fall 2027, with any DC forms that are affected.

Key: 460

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 3:05 pm

Viewing: MET ENG 4350 : Process Metallurgy Applications

Last edit: 09/28/26 3:05 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

MT ENG-BS: Metallurgical Engineering BS

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	4350
Title	Process Metallurgy Applications
Abbreviated Course Title	Process Metallurgy Appl
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 03/05/26 11:25 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 03/16/26 3:27 pm Hannah Johnson (hjh9x): Rollback to Initiator
3. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
4. 10/19/26 9:27 am

Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 10/21/26 11:09 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
6. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

Application of thermodynamics to process metallurgy. Equilibrium calculations with stoichiometry and heat balance restrictions, phase transformations, and solution thermodynamics. Use of thermodynamic software to solve complex equilibria in metallurgical applications.

Prerequisite(s):

A ~~"C" or better~~ grade of "C" or better in Met ~~Cer~~ Eng 2200. ~~3230.~~

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: Yes ~~No~~

Elective for Majors: No

Communication Intensive: No

Communication Emphasized: No

Grading Basis	Graded
Repeatable	No

Justification

Updated prerequisite from Cer Eng 3230 to Met Eng 2200 due to renumbering.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (03/16/26 3:27 pm): Rollback: Rolled back because the change in prereq course is an affecting change and can be resubmitted for Fall 2027, with any DC forms that are affected.

Key: 8955

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 3:06 pm

Viewing: MET ENG 4450 : Steelmaking

Last approved: 03/25/26 6:04 am

Last edit: 09/28/26 3:06 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

MT ENG-BS: Metallurgical Engineering BS

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	4450
Title	Steelmaking
Abbreviated Course Title	Steelmaking
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/19/26 9:28 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/21/26 11:10 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

History

1. Oct 19, 2015 by F. Scott Miller (smiller)
2. Mar 25, 2026 by David Lipke (lipke)

Introduction to the fundamentals and unit processes used to turn impure iron and scrap into steel. Includes desulfurization, BOF and electric furnace operations, ladle metallurgy, casting, and stainless steel manufacture.

Prerequisite(s):
A grade ~~Grade~~ of "C" or better in ~~Cer Eng 3230 or~~ Met Eng 2200. ~~3230.~~

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

Revised pre-requisite numbering.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Key: 1290

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 2:18 pm

Viewing: MET ENG 5220 : Recent Advances In Extractive Metallurgy

Last approved: 03/25/26 6:04 am

Last edit: 09/28/26 2:18 pm

Changes proposed by: David Lipke (lipked)

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	5220
Title	Recent Advances In Extractive Metallurgy
Abbreviated Course Title	Rec Advances Extract Met
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/19/26 9:39 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/21/26 11:10 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

History

1. Mar 25, 2026 by David Lipke (lipke)

A survey of extractive processes recently developed in the light of modern requirements with respect to raw materials, product quality, environmental impact, energy consumption, capital cost and process control.

Prerequisite(s):

Met Eng 2200. ~~3230.~~

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

Revises course from 2 credit hours to 3 credit hours.

Revises pre-requisite to renumbered Met Eng 2200 (Thermodynamics)

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Key: 8968

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 3:07 pm

Viewing: MET ENG 5310 : Corrosion and Its Prevention

Also listed as: **CHEM ENG 5315**

Formerly known as: **MET ENG 4230**

Last approved: 11/21/19 6:00 am

Last edit: 09/28/26 3:07 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CHEM ENG 5315:

CHEMPRO-CT: Chemical Process Engineering CT

MAT S E-MI: Materials Science and Engineering Minor

MET ENG 5310:

CR ENG-BS: Ceramic Engineering BS

IRON-CT: Iron and Steel Metallurgy Certificate

MATEXTR-CT: Materials for Extreme Environments Certificate

MAT S E-MI: Materials Science and Engineering Minor

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	5310
Title	Corrosion and Its Prevention
Abbreviated Course Title	Corrosion & Its Prevent

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/19/26 9:25 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/21/26 11:10 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:29 am Hannah Johnson

Co-Listed Course	CHEM ENG 5315	Department	Chemical and Biochemical Engineering (RCHEMENG)

(hjh9x): Approved for Pending CCC Agenda post

History

1. May 8, 2017 by F. Scott Miller (smiller)
2. Dec 13, 2017 by ershenb
3. Oct 7, 2019 by ershenb
4. Nov 21, 2019 by ershenb

Catalog Description

A study of the theories of corrosion and its application to corrosion and its prevention.

Prerequisite(s):

A grade of "C" or better in ~~either~~ Chem Eng 3120 or Met ~~Cer~~ Eng 2200. ~~3230.~~

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

Revised pre-requisite numbering.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Key: 313

Preview Bridge

Course Change Request

Date Submitted: 10/07/26 2:12 pm

Viewing: MET ENG 5330 : Nonferrous Alloys

Last edit: 10/15/26 1:31 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

ADV MAT-CT: Advanced Engineering Materials Certificate

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	5330
Title	Nonferrous Alloys
Abbreviated Course Title	Nonferrous Alloys
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 10/15/26 9:12 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/15/26 1:31 pm Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 12:01 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:29 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

Structure and properties of nonferrous alloys (Al, Ti, Mg, Ni and Cu) are described. The role of processing and microstructure in the development of mechanical properties is emphasized.

Prerequisite(s):

Met Eng 3130. ~~3130 or Met Eng 5810.~~

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

Removes Met Eng 5810 from prerequisite list (deactivated)

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/15/26 1:31 pm): Selected yes for elective for majors. Selected no for CI and CE.

Key: 8969

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 3:08 pm

Viewing: MET ENG 5450 : Advanced Steelmaking

Last approved: 03/25/26 6:04 am

Last edit: 09/28/26 3:08 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

IRON-CT: Iron and Steel Metallurgy Certificate

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	5450
Title	Advanced Steelmaking
Abbreviated Course Title	Advanced Steelmaking
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/19/26 9:29 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/21/26 11:10 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

History

1. Oct 19, 2015 by F. Scott Miller (smiller)
2. Mar 25, 2026 by David Lipke (lipke)

This course is designed to provide students with an enhanced understanding of the chemistry and physics of ironmaking, steelmaking and casting, to apply these concepts to a wide range of problems in modern steelmaking and casting operations, and to perform advanced design and operational calculations associated with refining and continuous casting processes.

Prerequisite(s):

A grade ~~Grade~~ of "C" or better in ~~Cer Eng 3230 or~~ Met Eng 2200. ~~3230.~~

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

Revised pre-requisite numbering.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Key: 1455

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 3:08 pm

Viewing: MET ENG 5480 : Refining Of Metals

Last approved: 04/09/25 6:03 am

Last edit: 09/28/26 3:08 pm

Changes proposed by: David Lipke (lipked)

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	5480
Title Refining Of Metals	
Abbreviated Course Title	Refining Of Metals
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 03/05/26 11:25 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 03/16/26 3:27 pm Hannah Johnson (hjh9x): Rollback to Initiator
3. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
4. 10/19/26 9:30 am

Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 10/21/26 11:10 am Theresa Swift (thswift): Approved for Engineering DSCC Chair
6. 10/26/26 8:29 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Apr 2, 2018 by F. Scott Miller (smiller)
2. Jun 23, 2018 by ershenb
3. Mar 3, 2021 by F. Scott Miller (smiller)
4. Apr 9, 2025 by esdk3

Principles and applications of metal production by electrochemical methods. The course will address basic copper and zinc electrometallurgy. This includes discussion of anodes and anodic processes, cathode deposit control and contamination mechanisms, Faraday's Law and current efficiency, and current state of practice.

Prerequisite(s):

~~Cer Eng 3230,~~ Met Eng 2200, Met Eng 3220, or graduate standing, or instructor approval.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

Justification

Updated prerequisite from Cer Eng 3230 to Met Eng 2200 due to renumbering.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (03/16/26 3:27 pm): Rollback: Rolled back because the change in prereq course is an affecting change and can be resubmitted for Fall 2027, with any DC forms that are affected.

Key: 2364

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Inactivation Proposal

Date Submitted: 09/28/26 2:18 pm

Viewing: **MET ENG 5525 : Scanning Electron Microscopy Lab**

Last approved: 04/03/17 3:15 am

Last edit: 10/26/26 9:14 am

Changes proposed by: David Lipke (lipked)

Justification for this inactivation request

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:33 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:36 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am

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

History

1. Apr 3, 2017 by F. Scott Miller (smiller)

Has not been taught in 10+ years

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	5525
Title	Scanning Electron Microscopy Lab
Abbreviated Course Title	SEM Lab
Co-Listed Course	

Catalog Description

A course in the practical use and operation of scanning electron beam instruments and their associated techniques.

Prerequisite(s):

Preceded or accompanied by Met Eng 5520.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Laboratory	1

Total:	1

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

Justification

Semesters Previously Offered

Term(s) Offered as experimental

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/05/26 9:33 am): Was taught in Spring of 2021 with 11 student enrolled.

Hannah Johnson (hjh9x) (10/26/26 9:14 am): Taught in SP 2020 with 9 enrolled, FL 2019 with 18 enrolled, SP 2019 with 18 enrolled, FL 2018 with 18 enrolled, and was offered additional times before 2018 and had enrollment.

Course Change Request

A deleted record cannot be edited

Course Inactivation Proposal

Date Submitted: 09/28/26 2:19 pm

Viewing: **MET ENG 5620 : Materials Behavior**

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

Last edit: 10/05/26 9:34 am

Changes proposed by: David Lipke (lipked)

Justification for this inactivation request

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:35 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:37 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am

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

History

1. Jun 30, 2014 by F. Scott Miller (smiller)
2. May 24, 2016 by F. Scott Miller (smiller)

Has not been taught in 10+ years

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	5620
Title	Materials Behavior
Abbreviated Course Title	Materials Behavior
Co-Listed Course	

Catalog Description

A course in crystal defects and deformation; mechanical testing; creep; fracture mechanics and fatigue.

Prerequisite(s):

Grade of "C" or better in both Met Eng 2110 and Met Eng 3120.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Communication Intensive:

Communication Emphasized:

Grading Basis: Graded

Repeatable: No

Justification

Semesters Previously Offered

Term(s) Offered as experimental:

Previous Course Code:

Is this a MOTR Course?:

Reviewer Comments

Hannah Johnson (hjh9x) (10/05/26 9:34 am): Taught once in 2017 with six students enrolled.

Key: 4073

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Inactivation Proposal

Date Submitted: 09/28/26 2:19 pm

Viewing: **MET ENG 6160 : Advanced Mechanical Metallurgy**

Last approved: 05/24/16 4:58 am

Last edit: 10/26/26 9:16 am

Changes proposed by: David Lipke (lipked)

Justification for this inactivation request

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:36 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:36 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am

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

History

1. May 24, 2016 by F. Scott Miller (smiller)

Has not been taught in 10+ years

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	6160
Title	Advanced Mechanical Metallurgy
Abbreviated Course Title	Adv Mech Metallurgy
Co-Listed Course	

Catalog Description

Elastic and plastic behavior of metallic single crystals and polycrystalline aggregates. Resulting changes in mechanical properties are considered. Included are applications to metal fabrication.

Prerequisite(s):

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: No

Communication Intensive:

Communication Emphasized:

Grading Basis: Graded

Repeatable: No

Justification

Semesters Previously Offered

Term(s) Offered as experimental:

Previous Course Code:

Is this a MOTR Course?:

Reviewer Comments

Hannah Johnson (hjh9x) (10/26/26 9:16 am): Does not appear in Joess to have been offered.

Key: 4287

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Inactivation Proposal

Date Submitted: 09/28/26 2:19 pm

Viewing: **MET ENG 6325 : Advanced Ferrous Microstructures**

Last approved: 10/07/17 3:29 am

Last edit: 10/05/26 9:37 am

Changes proposed by: David Lipke (lipked)

Justification for this inactivation request

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:37 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:36 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am

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

History

1. Oct 7, 2017 by F. Scott Miller (smiller)

Has not been taught in 10+ years

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	6325
Title	Advanced Ferrous Microstructures
Abbreviated Course Title	Adv Ferrous Microstruct
Co-Listed Course	

Catalog Description

Course provides an in-depth explanation of microstructural development during solidification, thermo-mechanical processing, and heat treatment of steel. Topics: microscopy, metallography, the Fe-C phase diagram, solidification, homogenization, grain size control, formation of microstructures upon heating/cooling. Term paper and presentation required.

Prerequisite(s):

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours

Credit Type	Credit Hours
Lecture	1
Laboratory	1

Total: 2

Required for Majors: No

Elective for Majors: No

Communication Intensive:

Communication Emphasized:

Grading Basis: Graded

Repeatable: No

Justification

Semesters Previously Offered

Term(s) Offered as experimental:

Previous Course Code:

Is this a MOTR Course?:

Reviewer Comments

Hannah Johnson (hjh9x) (10/05/26 9:37 am): Taught in 2018 with four students.

Key: 4434

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Inactivation Proposal

Date Submitted: 09/28/26 2:19 pm

Viewing: **MET ENG 6535 : Transmission Electron Microscopy Lab**

Last approved: 04/03/17 3:15 am

Last edit: 10/05/26 9:39 am

Changes proposed by: David Lipke (lipked)

Justification for this inactivation request

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:39 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:36 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am

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

History

1. Apr 3, 2017 by F. Scott Miller (smiller)

Has not been taught in 10+ years

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Metallurgical Engineering (MET ENG)
Course Number	6535
Title	Transmission Electron Microscopy Lab
Abbreviated Course Title	TEM Lab
Co-Listed Course	

Catalog Description

A course in the practical use and operation of transmission electron beam instruments and their associated techniques.

Prerequisite(s):

Preceded or accompanied by Met Eng 5520.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Laboratory	1

Total:	1

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

Justification

Semesters Previously Offered

Term(s) Offered as experimental

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/05/26 9:39 am): Taught in 2018 with 4 students; taught in 2019 with 4 students; and taught in 2020 with 6 students.

Key: 4392

Preview Bridge

Course Change Request

Date Submitted: 09/28/26 2:11 pm

Viewing: MS&E 6310 : Advanced Biomaterials ~~II~~

Also listed as: BIO SCI 6210 / CHEM ENG 6300

Last approved: 08/06/24 6:04 am

Last edit: 10/05/26 9:43 am

Changes proposed by: David Lipke (lipked)

Programs referencing this course

CHEM ENG 6300:

CHEMPRO-CT: Chemical Process Engineering CT

BIOENG-PHD: Bioengineering PhD

Requested Effective Date	Fall 2027	
Department	Materials Science & Engineering (RMATSENG)	
Discipline	Materials Science & Engineering (MS&E)	
Course Number	6310	
Title	Advanced Biomaterials ~~II~~	
Abbreviated Course Title	Adv Biomater ~~Biomaterials II~~	
Co-Listed Course	BIO SCI 6210	Department: Biological Sciences (RBIOLSCI)
	CHEM ENG 6300	Department: Chemical and Biochemical

In Workflow

1. **RMATSENG 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. 09/28/26 3:27 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/05/26 9:44 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:39 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson

Engineering (RCHEMENG)

(hjh9x): Approved for Pending CCC Agenda post

Catalog Description

History

1. May 30, 2016 by F. Scott Miller (smiller)
2. Aug 6, 2024 by Crystal Wilson (wilsoncry)

This course will introduce graduate students to a broad array of topics in biomaterials, including ceramic, metallic, and polymeric biomaterials for in vivo use, basic concepts related to cells and tissues, host reactions to biomaterials, biomaterials-tissue compatibility, and degradation of biomaterials. A term paper and oral presentation are required.

Prerequisite(s):
Graduate standing or permission of instructor.

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: No

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

Justification

Removing I+II from 'Biomaterials I' and 'Biomaterials II' in lieu of preferred 'Biomaterials' and 'Advanced Biomaterials' nomenclature.

Added a pre-requisite of graduate standing or permission of instructor.

Semesters Previously Offered

Term(s) Offered as experimental

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/05/26 9:43 am): Selected no for CI and CE requirements.

Key: 4295

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 09/21/26 11:33 am

Viewing: PHYSICS 4401 : Introduction to Quantum Science and Technology

Last edit: 10/07/26 2:38 pm

Changes proposed by: Marco Cavaglia (cavagliam)

Programs referencing this course

PROPOSED: Quantum Science and Technology

Requested Effective Date	Fall 2027
Department	Physics (RPHYSICS)
Discipline	Physics (PHYSICS)
Course Number	4401
Title	Introduction to Quantum Science and Technology
Abbreviated Course Title	Quantum Science and Technology
Co-Listed Course	

Catalog Description

In Workflow

1. **RPHYSICS 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. 06/09/26 2:10 pm Thomas Vojta (vojtat): Approved for RPHYSICS Chair
2. 07/09/26 10:57 am Hannah Johnson (hjh9x): Rollback to Initiator
3. 10/01/26 8:57 pm Marco Cavaglia (cavagliam): Approved for RPHYSICS Chair
4. 10/19/26 11:34 am Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 10/23/26 11:45 am

Katie Shannon (shannonk): Approved for Sciences DSCC Chair
6. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

This course introduces the foundations and frontiers of modern quantum science and technology. It covers core concepts of quantum mechanics such as superposition, entanglement, and measurement, as well as essential mathematical tools and key engineering challenges associated with contemporary quantum platforms. The course surveys transformative applications in areas such as quantum dynamics, quantum simulation, quantum chemistry, quantum sensing, quantum communication, and quantum computing, highlighting connections across physics, engineering, and computer science.

Prerequisite(s):
Math 3304 and Physics 2135.

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 will be a required course for the UG certificate "Quantum Science and Technology" that the Physics Department is developing. This is why we are skipping the ec stage for this class.

We are currently witnessing the “second” quantum revolution: Quantum science is transforming from an area of fundamental research to the center of a technological revolution. Research firms project up to 800,000 new quantum jobs in the next ten years globally. Missouri is not currently well-positioned to take advantage of this boom due to a lack of a properly trained work¬¬force with quantum skills. The proposed certificate aims to fill this gap. It is designed for majors in any STEM field who wish to enhance their degrees with quantum knowledge. The proposed course is the first required course for this certificate.

Semesters Previously Offered

Term(s) Offered as experimental

Taught as an EC once in SP 26 as 5001.005 with 8 students enrolled. Taught as Recitation/ Seminar/Discussion as a 2 cr. hr. course.

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (06/09/26 2:46 pm): Selected graded for grading basis.
Hannah Johnson (hjh9x) (06/12/26 3:27 pm): Added a period to the prereq.
Hannah Johnson (hjh9x) (07/09/26 10:57 am): Rollback: Need the DC form submitted as well.

Hannah Johnson (hjh9x) (10/02/26 3:02 pm): Alphabetized prereq's. Selected no for CE.
Hannah Johnson (hjh9x) (10/02/26 3:03 pm): Changed effective term to Fall 2027 per CCC deadlines.
Hannah Johnson (hjh9x) (10/07/26 2:38 pm): Added the EC information.

Key: 10516

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 10/01/26 6:02 pm

Viewing: PHYSICS 4411 : Physics of Quantum Information

Last edit: 10/07/26 2:45 pm

Changes proposed by: Marco Cavaglia (cavagliam)

Programs referencing this course

PROPOSED: Quantum Science and Technology

Requested Effective Date	Fall 2027
Department	Physics (RPHYSICS)
Discipline	Physics (PHYSICS)
Course Number	4411
Title	Physics of Quantum Information
Abbreviated Course Title	Physics of Quantum Information
Co-Listed Course	

Catalog Description

In Workflow

1. **RPHYSICS 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. 10/01/26 8:57 pm Marco Cavaglia (cavagliam): Approved for RPHYSICS Chair
2. 10/19/26 11:34 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 11:45 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC

This course introduces physical concepts of quantum information and their application in quantum computing. It surveys quantum physics as the basis for information processing. The course then explores quantum computing and communication, focusing on entanglement as a crucial aspect of quantum information processing. Students will explore quantum algorithms, write quantum computing programs, and run the programs on quantum hardware.

Prerequisite(s):

Physics 2135 or Physics 2305 or Physics 4401.

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: Yes

Grading Basis: Graded

Repeatable: No

Justification

This will be an elective course for the UG certificate "Quantum Science and Technology" that the Physics Department is developing. This is why we are skipping the EC stage for this class.

We are currently witnessing the "second" quantum revolution: Quantum science is transforming from an area of fundamental research to the center of a technological revolution. Research firms project up to 800,000 new quantum jobs in the next ten years globally. Missouri is not currently well-positioned to take advantage of this boom due to a lack of a properly

trained workforce with quantum skills. The proposed certificate aims to fill this gap. It is designed for majors in any STEM field who wish to enhance their degrees with quantum knowledge. The proposed course is an elective course for this certificate.

Semesters Previously Offered

Term(s) Offered as experimental

Taught as an EC once in FL 24 with 10 students enrolled. Taught as 5001.003.

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/07/26 2:35 pm): Removed the word 'prerequisite' from the prerequisite section. Selected graded for grading basis. Added the EC information. Removed PHYSICS 4401 course title from the prereq.

Hannah Johnson (hjh9x) (10/07/26 2:45 pm): Alphabetized prereqs.

Key: 10559

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 10/01/26 6:02 pm

Viewing: PHYSICS 4421 : Quantum Devices

Last edit: 10/07/26 3:40 pm

Changes proposed by: Marco Cavaglia (cavagliam)

Programs referencing this course	PROPOSED: Quantum Science and Technology

Requested Effective Date	Fall 2027
Department	Physics (RPHYSICS)
Discipline	Physics (PHYSICS)
Course Number	4421
Title	Quantum Devices
Abbreviated Course Title	Quantum Devices
Co-Listed Course	

Catalog Description

In Workflow

1. **RPHYSICS 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. 10/01/26 8:57 pm Marco Cavaglia (cavagliam): Approved for RPHYSICS Chair
2. 10/19/26 11:35 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 11:45 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC

Agenda post

An introduction to the working principles of various superconducting circuit-based quantum devices, the fabrication techniques utilizing photolithography, electron-beam lithography, and thin film deposition, and the device characterization techniques with GHz scattering parameters. This course provides hands-on fabrication opportunities in the second half of the course. It will focus on transmon qubits, microwave resonators, and their interconnectivity. Actual devices will be designed, fabricated and tested using existing facilities and equipment for device fabrication and characterization.

Prerequisite(s):

Physics 4301 or Physics 4401.

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

This will be an elective course for the UG certificate "Quantum Science and Technology" that the Physics Department is developing. This is why we are skipping the EC stage for this class.

We are currently witnessing the "second" quantum revolution: Quantum science is transforming from an area of fundamental research to the center of a technological revolution.

Research firms project up to 800,000 new quantum jobs in the next ten years globally. Missouri is not currently well-positioned to take advantage of this boom due to a lack of a properly trained workforce with quantum skills. The proposed certificate aims to fill this gap. It is designed for majors in any STEM field who wish to enhance their degrees with quantum knowledge. The proposed course is an elective course for this certificate.

Semesters Previously Offered

Term(s) Offered as experimental

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/07/26 3:40 pm): Removed titles of courses in the prereq, placed in alpha/numerical order, and added a period. Selected graded for grading basis per email from Dr. Cavaglia. Selected no for CE.

Key: 10560

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 10/01/26 6:02 pm

Viewing: PHYSICS 5343 : Superconductivity

Last edit: 10/07/26 2:41 pm

Changes proposed by: Marco Cavaglia (cavagliam)

Programs referencing this course	PROPOSED: Quantum Science and Technology

Requested Effective Date	Fall 2027
Department	Physics (RPHYSICS)
Discipline	Physics (PHYSICS)
Course Number	5343
Title	Superconductivity
Abbreviated Course Title	Superconductivity
Co-Listed Course	

Catalog Description

In Workflow

1. **RPHYSICS 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. 10/01/26 8:57 pm Marco Cavaglia (cavagliam): Approved for RPHYSICS Chair
2. 10/19/26 11:35 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 11:45 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC

An introduction to electromagnetism, thermodynamics, and semiclassical theory of superconductivity. Topics include London theory, Ginzburg-Landau theory, BCS theory, Josephson junction, unconventional superconductivity, high-Tc superconductivity, superconducting quantum computers, and experimental techniques for superconductivity research.

Prerequisite(s):

Physics 2305 or Physics 4301 or Physics 4401.

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: Yes

Grading Basis: Graded

Repeatable: No

Justification

This will be an elective course for the UG certificate "Quantum Science and Technology" that the Physics Department is developing. This is why we are skipping the EC stage for this class.

We are currently witnessing the "second" quantum revolution: Quantum science is transforming from an area of fundamental research to the center of a technological revolution. Research firms project up to 800,000 new quantum jobs in the next ten years globally. Missouri is not currently well-positioned to take advantage of this boom due to a lack of a properly

trained workforce with quantum skills. The proposed certificate aims to fill this gap. It is designed for majors in any STEM field who wish to enhance their degrees with quantum knowledge. The proposed course is an elective course for this certificate.

Semesters Previously Offered

Term(s) Offered as experimental

Taught as an EC once in the SP of 2026 with 15 students enrolled. Taught as 5001.006.

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/07/26 2:41 pm): Removed course titles from prereq section, placed in alpha/numerical order, and added a period at the end. Selected graded for grading basis. Added EC information.

Key: 10562

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 10/01/26 6:03 pm

Viewing: PHYSICS 5353 : Quantum Materials

Last edit: 10/07/26 2:43 pm

Changes proposed by: Marco Cavaglia (cavagliam)

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

MAT S E-MI: Materials Science and Engineering Minor

PROPOSED: Quantum Science and Technology

Requested Effective Date	Summer 2027
Department	Physics (RPHYSICS)
Discipline	Physics (PHYSICS)
Course Number	5353
Title	Quantum Materials
Abbreviated Course Title	Quantum Materials
Co-Listed Course	

Catalog Description

In Workflow

1. **RPHYSICS 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. 10/01/26 8:57 pm Marco Cavaglia (cavagliam): Approved for RPHYSICS Chair
2. 10/19/26 11:36 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 11:45 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC

Introduction into crystalline quantum materials. Topics include classes of quantum materials, basic characterization techniques, and materials tuning, crystal growth techniques, thermodynamics of phase diagrams, and binary and ternary phase diagrams.

Prerequisite(s):

Physics 2135.

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: Yes

Grading Basis: Graded

Repeatable: No

Justification

This will be an elective course for the UG certificate "Quantum Science and Technology" that the Physics Department is developing. This is why we are skipping the EC stage for this class.

We are currently witnessing the "second" quantum revolution: Quantum science is transforming from an area of fundamental research to the center of a technological revolution. Research firms project up to 800,000 new quantum jobs in the next ten years globally. Missouri is not currently well-positioned to take advantage of this boom due to a lack of a properly trained workforce with quantum skills. The proposed certificate aims to fill this gap. It is designed for majors in any STEM field who wish to enhance their degrees with quantum

knowledge. The proposed course is an elective course for this certificate.

Semesters Previously Offered

Term(s) Offered as experimental

(As of 10/7/26) Taught once in FL 2026 with 15 students enrolled. Taught as 5001.004.

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/07/26 2:43 pm): Added a period at the end of the prereq. Selected graded for grading basis. Added EC information.

Key: 10561

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 10/01/26 6:03 pm

Viewing: PHYSICS 5523 : Quantum Optics

Last edit: 10/07/26 2:51 pm

Changes proposed by: Marco Cavaglia (cavagliam)

Programs referencing this course	PROPOSED: Quantum Science and Technology

Requested Effective Date	Fall 2027
Department	Physics (RPHYSICS)
Discipline	Physics (PHYSICS)
Course Number	5523
Title	Quantum Optics
Abbreviated Course Title	Quantum Optics
Co-Listed Course	

Catalog Description

In Workflow

1. **RPHYSICS 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. 10/01/26 8:57 pm Marco Cavaglia (cavagliam): Approved for RPHYSICS Chair
2. 10/19/26 11:39 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 11:45 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC

Introduction to the fundamental principles of quantum optics: the quantum description of light and its interaction with matter, focusing on concepts central to modern quantum science and technology. Topics include quantization of the electromagnetic field, photons and coherence, atom–light interactions, lasers, and elementary quantum states of light. Emphasis will be placed on bridging physical insight and intuition with key mathematical tools in an interdisciplinary fashion relevant to modern quantum technologies.

Prerequisite(s):

Physics 4301 or Physics 4401.

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: Yes

Grading Basis: Graded

Repeatable: No

Justification

This will be an elective course for the UG certificate "Quantum Science and Technology" that the Physics Department is developing. This is why we are skipping the EC stage for this class.

We are currently witnessing the "second" quantum revolution: Quantum science is transforming from an area of fundamental research to the center of a technological revolution. Research firms project up to 800,000 new quantum jobs in the next ten years globally. Missouri

is not currently well-positioned to take advantage of this boom due to a lack of a properly trained workforce with quantum skills. The proposed certificate aims to fill this gap. It is designed for majors in any STEM field who wish to enhance their degrees with quantum knowledge. The proposed course is an elective course for this certificate.

Semesters Previously Offered

Term(s) Offered as experimental

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/07/26 2:51 pm): Removed course titles from the prereqs, placed in alpha/numerical order and added a period. Selected graded for the grading basis.

Key: 10563

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 09/09/26 11:17 am

Viewing: POL SCI 5300 : Advanced Principles of Public Policy

Last edit: 09/09/26 1:33 pm

Changes proposed by: Shannon Fogg (sfogg)

Programs referencing this course

PROPOSED: Environmental Policy

Requested Effective Date	Fall 2027
Department	History & Political Science (RHISTORY)
Discipline	Political Science (POL SCI)
Course Number	5300
Title	Advanced Principles of Public Policy
Abbreviated Course Title	Adv. Public Policy Principles
Co-Listed Course	

Catalog Description

In Workflow

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

Approval Path

1. 05/20/26 8:58 am Shannon Fogg (sfogg): Approved for RHISTORY Chair
2. 06/09/26 2:37 pm Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 07/20/26 12:21 pm Alejandra Sobrado (asgx4): Approved for Arts & Humanities DSCC Chair
4. 07/27/26 9:12 am Hannah Johnson (hjh9x): Approved

for Pending CCC Agenda post

5. 08/12/26 3:20 pm Hannah Johnson (hjh9x): Rollback to Initiator
6. 08/14/26 2:38 pm Shannon Fogg (sfogg): Approved for RHISTORY Chair
7. 08/18/26 8:38 am Hannah Johnson (hjh9x): Rollback to Initiator
8. 09/09/26 11:17 am Shannon Fogg (sfogg): Approved for RHISTORY Chair
9. 10/14/26 2:08 pm Hannah Johnson (hjh9x): Approved for CCC Secretary
10. 10/22/26 2:39 pm Alejandra Sobrado (asgx4): Approved for Arts & Humanities DSCC Chair
11. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

This course presents an advanced study of public policy in the United States. Students analyze the policy process, the resulting policy choices and the impact of the choices on the American people. As an advanced version of Pol Sci 3300, it will include additional assignments and expectations. Credit cannot be earned for both Pol Sci 3300 and Pol Sci 5300.

Prerequisite(s):

Graduate standing or instructor's permission.

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

Required course for new graduate certificate in Environmental Policy

Semesters Previously Offered

Term(s) Offered as experimental

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (05/22/26 10:29 am): Added a period to the prereq. Selected graded for grading basis.

Hannah Johnson (hjh9x) (05/26/26 10:01 am): Changed effective term to Fall 2027 per email from Shannon Fogg.

Hannah Johnson (hjh9x) (06/08/26 8:19 am): Selected no for CI and CE per email from Shannon Fogg.

Hannah Johnson (hjh9x) (08/12/26 3:20 pm): Rollback: Rolled back because the CC from must go through workflow with the DC.

Hannah Johnson (hjh9x) (08/18/26 8:38 am): Rollback: Rolled back because the CC from must go through workflow with the DC.

Hannah Johnson (hjh9x) (09/09/26 1:33 pm): Selected no for required for majors.

Key: 10419

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 09/28/26 3:29 pm

Viewing: SEMI ENG 4099 : Undergraduate Research

Last edit: 10/14/26 2:10 pm

Changes proposed by: David Lipke (lipked)

Programs referencing this course

MAT S E-MI: Materials Science and Engineering Minor

Requested Effective Date	Fall 2027
Department	Materials Science & Engineering (RMATSENG)
Discipline	Semiconductor Engineering (SEMI ENG)
Course Number	4099
Title	Undergraduate Research
Abbreviated Course Title	UG Research
Co-Listed Course	

Catalog Description

In Workflow

1. **RMATSENG 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. 09/28/26 4:22 pm Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/14/26 2:11 pm Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/15/26 3:55 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

Designed for the undergraduate student who wishes to engage in research. Not for graduate credit. Not more than six credit hours allowed for graduation credit. Subject and credit to be arranged with the instructor.

Prerequisite(s):

Corequisite(s):

Credit Hours

Credit Hours

Credit Type	Credit Hours
Independent Study	0

Total: 0-6

Required for Majors: No

Elective for Majors: Yes

Communication Intensive: No

Communication Emphasized: No

Grading Basis: Graded

Repeatable: No

Justification

Mirrors availability of research-based experiential learning in other MSE disciplines.

Semesters Previously Offered

Term(s) Offered as experimental

Previous Course Code

Is this a MOTR Course?

Reviewer Comments

Hannah Johnson (hjh9x) (10/14/26 1:38 pm): Selected graded for the grading basis, selected yes for elective for majors, and no for CI and CE.

Hannah Johnson (hjh9x) (10/14/26 2:10 pm): Removed 0-6 in the credit hours and replaced it with 0, leaving the total credit hours as 0-6.

Key: 10565

Preview Bridge

Program Change Request

Date Submitted: 10/05/26 2:33 pm

Viewing: AP MATH-BS : Applied Mathematics BS

Last approved: 08/29/25 8:25 am

Last edit: 10/15/26 9:45 am

Changes proposed by: Crystal Wilson (wilsoncry)

Catalog Pages Using this Program

Mathematics

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Science
Academic Level	Undergraduate
Program Code	AP MATH-BS
Department	Mathematics & Statistics
Discipline	Mathematics
Title	

In Workflow

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

Approval Path

1. 10/17/25 11:39 am John Singler (singlerj): Approved for RMATHEMA Chair
2. 10/17/25 2:01 pm jm558v: Approved for CCC Secretary
3. 11/05/25 1:14 pm Crystal Wilson (wilsoncry): Rollback to RMATHEMA Chair for Sciences DSCC Chair
4. 12/03/25 12:52 pm John Singler (singlerj): Approved for RMATHEMA Chair
5. 12/03/25 1:43 pm

jm558v: Approved for CCC Secretary

6. 12/08/25 8:47 am Crystal Wilson (wilsoncry): Rollback to Initiator
7. 10/05/26 5:49 pm Eun Heui Kim (ek9dq): Approved for RMATHEMA Chair
8. 10/19/26 10:35 am Crystal Wilson (wilsoncry): Approved for CCC Secretary
9. 10/23/26 11:42 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
10. 10/26/26 8:26 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Apr 28, 2014 by imorgan
2. Apr 28, 2014 by Lahne Black (lahne)
3. Jun 13, 2014 by pantaleoa
4. Jun 13, 2014 by pantaleoa
5. Jul 21, 2015 by pantaleoa
6. Jul 21, 2015 by pantaleoa

7. Apr 25, 2016 by imorgan
8. Aug 12, 2016 by cladmin-bdietzler
9. Jun 14, 2019 by Paul Runnion (prunnion)
10. Jul 1, 2020 by Paul Runnion (prunnion)
11. Feb 3, 2021 by Paul Runnion (prunnion)
12. Mar 9, 2021 by tibbettsmg
13. Mar 9, 2021 by tibbettsmg
14. May 5, 2021 by Paul Runnion (prunnion)
15. Jun 14, 2022 by Paul Runnion (prunnion)
16. Jun 14, 2024 by Paul Runnion (prunnion)
17. Jul 5, 2024 by Crystal Wilson (wilsoncry)
18. Jul 1, 2025 by Crystal Wilson (wilsoncry)
19. Aug 27, 2025 by Crystal Wilson (wilsoncry)
20. Aug 28, 2025 by Crystal Wilson (wilsoncry)
21. Aug 29, 2025 by Crystal Wilson (wilsoncry)

Applied Mathematics BS

CIP Code	27.0301 - Applied Mathematics, General.

Program Requirements and Description

Bachelor of Science

Applied Mathematics

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

The applied mathematics curriculum requires fifteen semester hours of technical electives, except where this requirement is reduced to compensate for extra requirements of emphasis areas, in addition to basic required courses in the sciences and economics. Specific requirements for the bachelor's degree are outlined in the sample program below.

Freshman Year

First Semester	Credits	Second Semester	Credits
Basic ROTC (if elected)[16]	0	Basic ROTC (if elected)[16]	0
COMP SCI 1500	3	COMP SCI 1570	3
ECON 1100 or 1200	3	COMP SCI 1580	1
ENGLISH 1120	3	ENGLISH 1160 or SPM S 1185[8]	3
MATH 1101[1]	1	MATH 1215[1]	4
MATH 1214 or 1211[1]	4	PHYSICS 1135	4
~~OR~~	-		
~~MATH 1208[1]~~	-		
	14		15

Sophomore Year

First Semester	Credits	Second Semester	Credits
Basic ROTC (if elected)[16]	0	Basic ROTC (if elected)[16]	0
Behavioral and Social Sciences Requirement[10,13]	3	Electives - Technical[14]	3
Electives[15]	3	Humanities and Fine Arts Requirement[11,13]	3
MATH 2222[1]	4	MATH 3109[1]	3
MATH 3108[1]	3	MATH 3304[1]	3
Science Requirement[9]	3	Statistics Requirement[1,3]	3
	16		15

Junior Year

First Semester	Credits	Second Semester	Credits
Electives[15]	3	Electives[15]	3
Electives - Math or Stat[1,6]	3	Electives - Math[1,4]	3

Electives - Technical[14]	3	Electives - Statistics[1,5]	3
Humanities and Fine Arts Requirement[11,13]	3	Electives - Technical[14]	3
MATH 4209[1]	3	Humanities, Arts, and Social Sciences Requirement[12,13]	3
	15		15
Senior Year			
First Semester	Credits	Second Semester	Credits
Capstone Course[1,7]	3	Electives[15]	9
Electives[15]	6	Electives - Math or Stat[1,6]	3
Electives - Math or Stat[1,6]	3	Electives - Technical[14]	3
Electives - Technical[14]	3		
	15		15

Total Credits: 120

1

A minimum grade of "C" is required by the department in each mathematics and statistics course counted toward the B.S. in applied mathematics.

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

The Mathematics Elective may be met by MATH 4211, MATH 5105, MATH 5215, or MATH 5585. The Mathematics Elective is not required for students earning the Data Science and Statistics emphasis area.

5

The Statistics Elective may be met by any statistics lecture course at the 4000 or 5000 level. Research (STAT 4099, STAT 5099) does not fulfill this requirement. Special topics and special problems courses are acceptable.

6

The three Math/Stat Electives may be chosen from any 4000 or 5000 level MATH or STAT lecture courses. Research (MATH 4099, MATH 5099, STAT 4099, STAT 5099) and seminars (MATH 4010, MATH 5010) do not fulfill this requirement. Special topics and special problems courses are acceptable.

7

The capstone experience for all applied mathematics majors (other than students completing the secondary education emphasis area) consists of a course chosen from the following list:
MATH 4098 (three credits), MATH 4099 or STAT 4099 (three credits), MATH 5107, MATH 5601, MATH 5602, MATH 5603, MATH 5604, MATH 5680, MATH 5737, MATH 5762, STAT 4210, STAT 5260, STAT 5290, STAT 5346, STAT 5353, STAT 5755, STAT 5756, STAT 5814.

8

May also be satisfied by ENGLISH 3560.

9

The Science Requirement may be met by Biology courses (BIO SCI 1113 or higher), Chemistry courses (CHEM 1301 or higher), or Geology courses (GEOLOGY 1110 or higher).

10

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.

11

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).

12

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.

13

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.

14

Technical Electives are courses in biology, business, chemistry, computer science, economics, education, engineering, finance, geology, geophysics, information science and technology, marketing, mechanics, physics, or technical communication approved by advisor. The general math curriculum requires 15 credit hours; actuarial science emphasis area, 9 credit hours; computational math emphasis area, 12 credit hours. All technical elective requirements are built into the statistics emphasis area via the included computer science minor.

15

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

16

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 at the Bachelor of Science Level

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

Actuarial Science Emphasis Area

Required courses:

ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3
ECON 2200	Intermediate Macroeconomic Theory	3

MATH 5737	Financial Mathematics	3
STAT 5643	Probability And Statistics	3
STAT 5644	Mathematical Statistics	3
And six hours from:		6
STAT 5346	Regression Analysis	3
STAT 5353	Statistical Data Analysis	3
STAT 5755	Statistical Models in Actuarial Science	3
STAT 5756	Statistical Models for Life Contingencies	3
STAT 5814	Applied Time Series Analysis	3

In addition, the student must pass the first actuarial science exam. ~~**Note that the capstone requirement, the three math/stat electives, and the one stat elective are included in, not separate from, this list ofcourses.**~~ **Note that** ~~**When selecting a 3000-level statistics course to satisfy**~~ **the capstone requirement, the three math/stat electives, and the one stat elective are included in, not separate from, this list of courses. When selecting a 3000-level statistics course to satisfy the major requirements, it is recommended that** ~~**that**~~ **students pursuing an Actuarial Science emphasis select Stat 3117.**

Computational Mathematics Emphasis Area

Required courses:

COMP SCI 1575	Data Structures	3
COMP SCI 1585	Data Structures Laboratory	1
MATH 5601	Introduction to Numerical Analysis	3
STAT 5346	Regression Analysis [2]	3
Select three of the following: [1]		
MATH 5302	Intermediate Differential Equations	3
MATH 5325	Partial Differential Equations	3
MATH 5602	Mathematical Foundation of Finite Element Methods	3
MATH 5603	Methods of Applied Mathematics	3
MATH 5604	Introduction to Numerical Methods for Differential Equations	3
MATH 5680	Mathematics of Machine Learning	3
Select one of the following:		
Statistics elective [3]		3

1

At least one of these three courses must be MATH 5602 or MATH 5604. These three courses replace the math/ stat electives listed in the general degree.

2

This fulfills the capstone requirement.

3

Any 4000 or 5000 level statistics lecture course. This fulfills the second statistics requirement for the degree.

Secondary Education Emphasis Area

You may earn a B.S. degree in applied mathematics from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with this emphasis area program. This program 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. This program can be completed in four academic years.

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

In order to successfully complete this emphasis area, students must attain at least a 2.5 GPA in all mathematics and statistics coursework and must attain at least a 3.0 GPA in all education courses as required by the Missouri Department of Elementary and Secondary Education for teacher certification. Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet these GPA requirements to be accepted into the program. Students must also meet all requirements listed on the teacher education website. Students who do not meet all the teacher certification requirements will not be eligible for the secondary education emphasis area, even if they have completed all coursework.

A degree in this emphasis area requires 120 credit hours. The required courses and a sample four-year program are provided below.

Freshman Year

First Semester	Credits	Second Semester	Credits
COMP SCI 1500	3	EDUC 3216	3
EDUC 1074	3	ENGLISH 1160 or SPM S 1185	3
EDUC 1104	1	MATH 1215[1]	4
ENGLISH 1120	3	~~EDUC 1164~~	~~2~~
MATH 1101[1]	1	PHYSICS 1135	4
MATH 1214 or 1211[1]	4	PSYCH 1101	3
~~OR~~	-		
~~MATH 1208[1]~~	-		
	15		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
HISTORY 1300 or 1310	3	Electives[9]	3
Humanities and Fine Arts Requirement[8]	3	MATH 3109[1]	3
MATH 2222[1]	4	MATH 3304[1]	3

MATH 3108[1]	3	PSYCH 3310	3
Science Requirement[7]	3	Statistics Requirement[3]	3
	16		15
Junior Year			
First Semester	Credits	Second Semester	Credits
EDUC 3164	2	EDUC 3280	3
EDUC 3170	3	EDUC 3340	3
~~EDUC 3216~~	~~3~~	Electives - Math[1,4]	3
EDUC 3298	1	MATH 4530[1]	3
Electives	2	PSYCH 2300 or EDUC 2102	3
MATH 4209[1]	3		
POL SCI 1200	3		
	14		15
Senior Year			
First Semester	Credits	Second Semester	Credits
Electives[9]	6	EDUC 4298 & EDUC 4299[6]	13
Electives-Math or Stat[1,5]	6		
PSYCH 4310 or EDUC 2310	3		
	15		13

Total Credits: 120

1

A minimum grade of "C" is required by the department in each mathematics and statistics course counted toward the B.S. in applied mathematics.

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

The Mathematics Elective may be met by MATH 4211, MATH 5105, MATH 5215, or MATH 5585. The Mathematics Elective is not required for students earning the Data Science and Statistics emphasis area.

5

Any two three-hour courses from the following list with the approval of the mathematics education advisor. MATH 5105, MATH 5106, MATH 5107, MATH 5108, MATH 5215, MATH 5302, MATH 5325, MATH 5351, MATH 5512, MATH 5585, MATH 5601, MATH 5602, MATH 5603, MATH 5604, MATH 5680, MATH 5737, MATH 5762, STAT 4210, STAT 5260, STAT 5290, STAT 5346, STAT 5353, STAT 5643, STAT 5644, STAT 5755, STAT 5756, STAT 5814.

6

Student Teaching satisfies the capstone requirement for students completing this emphasis area.

7

The Science Requirement may be met by Biology courses (BIO SCI 1113 or higher), Chemistry courses

(CHEM 1301 or higher), or Geology courses (GEOLOGY 1110 or higher).

8

The Humanities and Fine Arts Requirement may be met by selecting one course from from ART 1180, MUSIC 1150, THEATRE 1150, and ENGLISH 1211, ENGLISH 1212, ENGLISH 1221, ENGLISH 1222, and ENGLISH 1231 (or Non-prerequisite Literature).

9

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

Data Science and Statistics Emphasis Area

Required courses:

STAT 4210	Introduction to Statistical Data Science	3
STAT 5346	Regression Analysis [2]	3
STAT 5353	Statistical Data Analysis (Satisfies Capstone requirement) [1]	3
STAT 5643	Probability And Statistics	3
STAT 5644	Mathematical Statistics	3
Select one of the following:		6
STAT 5260	Statistical Data Analysis Using SAS	3
STAT 5290	Computational Bayesian Methods using Python	3
STAT 5814	Applied Time Series Analysis	3
or another approved computational statistics course		
Complete the following CS courses (in addition to those required for all Applied Mathematics majors):		
COMP SCI 1200	Discrete Mathematics for Computer Science [2]	3
COMP SCI 1575	Data Structures [2]	3
COMP SCI 1585	Data Structures Laboratory [2]	1
COMP SCI 2300	File Structures and Introduction to Database Systems [2]	3
COMP SCI 2500	Algorithms [2]	3
and one of the following two courses:		
COMP SCI 5400	Introduction To Artificial Intelligence [2]	3
COMP SCI 5402	Introduction to Data Mining [2]	3

1

Satisfies Capstone requirement.

2

Satisfies the requirements for a minor in Computer Science (when combined with COMP SCI 1500,

COMP SCI 1570, and COMP SCI 1580 which are required for all Applied Mathematics majors).

Justification for request

Removed math courses no longer being offered.

Education department is changing EDUC 1164 to EDUC 3164. Per the justification on the CC form, "Because of the 60 hour pathway legislation, we need to change this course to a 3000 level because it is not part of the first two years of community college, transfer coursework. This is one of a series of changes we are making to our program in anticipation of those requirements. We will be making the individual course changes and then submitting one DCC form to capture all of them."

Moved Educ 3164 to Junior Year, 1st Semester and moved Educ 3216 to Freshman Year, 2nd Semester because Educ 3216 is a pre-req for Educ 3164.

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents

Reviewer Comments

Crystal Wilson (wilsoncry) (11/05/25 9:36 am): Added STAT 3115 back to footnote 3. Per email received from Dr. Shannon, sciences DSCC chair, on October 31, Dr. Runnion met with Dr. Singler to discuss the stat changes and they do not want to approve the stat changes to this form at this time. They are okay with the removal of Math 1208 and Math 1221 as these courses have not been offered in years.

Crystal Wilson (wilsoncry) (11/05/25 1:14 pm): Rollback: Rollback per the request of the math department needing to make additional changes. They have been notified of the CCC deadlines.

Crystal Wilson (wilsoncry) (12/08/25 8:47 am): Rollback: Roll back per Dr. Runnion's request for the form to be at his step in workflow for additional edits prior to being submitted to RMATHEMA Chair.

Hannah Johnson (hjh9x) (10/07/26 2:21 pm): Removed MATH 5222 from footnote 5 under the Secondary Education Emphasis Area because of MATH 5222's inactivation.

Crystal Wilson (wilsoncry) (10/15/26 9:45 am): Placed courses in alpha/numerical order.

Program Change Request

Date Submitted: 09/28/26 4:07 pm

Viewing: BIO SC-BA : Biological Sciences BA

Last approved: 03/24/26 8:44 am

Last edit: 10/15/26 2:31 pm

Changes proposed by: Crystal Wilson (wilsoncry)

Catalog Pages Using this Program	Biological Sciences
Final Catalog	FS2027-SP2028
Rationale for	
Supporting	
Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Arts
CIM Prospectus	
Academic Level	Undergraduate
Program Code	BIO SC-BA
Department	Biological Sciences
Discipline	Biological 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. 09/30/26 4:06 pm Gina Yosten (gyxmr): Approved for RBIOLSCI Chair
2. 10/19/26 10:37 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 11:42 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/26/26 8:26 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Aug 1, 2014 by Katie Shannon (shannonk)
2. Jul 14, 2015 by pantaleoa
3. Oct 7, 2016 by Katie Shannon (shannonk)
4. Jun 28, 2017 by Katie Shannon (shannonk)
5. Nov 14, 2017 by Katie Shannon (shannonk)
6. Jun 18, 2018 by Katie Shannon (shannonk)
7. Jul 1, 2020 by Katie Shannon (shannonk)
8. Feb 3, 2021 by Katie Shannon (shannonk)
9. Jun 10, 2021 by Katie Shannon (shannonk)
10. Jun 14, 2022 by Katie Shannon (shannonk)
11. Jun 30, 2022 by jpnfd
12. Jun 30, 2022 by esdk3
13. Jun 1, 2023 by jpnfd
14. Jun 2, 2023 by jpnfd
15. Jul 5, 2024 by Crystal Wilson (wilsoncry)
16. Oct 25, 2024 by Katie Shannon (shannonk)

17. Jul 1, 2025 by Crystal Wilson (wilsoncry)
18. Aug 27, 2025 by Crystal Wilson (wilsoncry)
19. Dec 24, 2025 by Crystal Wilson (wilsoncry)
20. Mar 24, 2026 by Katie Shannon (shannonk)

Biological Sciences BA

CIP Code	26.0101 - Biology/Biological Sciences, General.

Purpose

Intended Audience

Program-Specific Admission

Program Requirements and Description

Bachelor of Arts

Biological Sciences

Degree Requirements

Specific requirements for the B.A. degree in biological sciences include a minimum of 120 semester hours of credit, including 30 hours of biology core courses. A "C" or better is required for all Biological Science courses. General Requirements for the B.A. must fulfill the Missouri S&T general education requirements applicable to the student's catalog year.

Core Courses		
BIO SCI 1201	Biological Sciences First Year Seminar	1
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 1229	Biodiversity Lab	1
BIO SCI 2213	Cell Biology	3
BIO SCI 2219	Cell Biology Laboratory	1
BIO SCI 2223	General Genetics	3
BIO SCI 2263	Ecology	3
BIO SCI 3233	Evolution	3
BIO SCI 4020	Senior Service Project	1
Advanced courses, 2000 level or higher (at least one with laboratory and one 3000 or 4000 level)		9
Chemistry		
CHEM 1310	General Chemistry I	4
CHEM 1100	Introduction To Laboratory Safety & Hazardous Materials	1
CHEM 1319	General Chemistry Laboratory	1
CHEM 1320	General Chemistry II	3
CHEM 2210	Organic Chemistry I	3
CHEM 2220	Organic Chemistry II	3
Mathematics & Physical Science		
Various courses in mathematics, physics, and/or geology chosen in consultation with academic advisor. (Note: Proficiency in College Algebra must be demonstrated by a grade of "C" or better in a College Algebra course or by examination)		9
Computer Science/Statistics (Select one of the following:)		

COMP SCI 1570 & COMP SCI 1580	Introduction To C++ Programming and Introduction To Programming Laboratory	4
COMP SCI 1971 & COMP SCI 1981	Introduction To Programming Methodology and Programming Methodology Laboratory	3
STAT 3425	Introduction to Biostatistics	4
General Requirements for BA		
English Composition		
ENGLISH 1120	Exposition And Argumentation	3
One additional composition course		3
Western Civilizations		
HISTORY 1100	Early Western Civilization	3
HISTORY 1200	Modern Western Civilization	3
Foreign Language (three semesters of a foreign language)		12
Humanities (including one class in each of literature, philosophy, and fine arts)		12
Social Sciences (including classes in two of the following three subjects: economics, political science, psychology)		12

Elective credits: In consultation with his or her advisor, each student will elect sufficient additional courses to complete a minimum of 120 credit hours.

Bachelor of Arts

Biological Sciences

Pre-Medicine Emphasis Area

Degree Requirements

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

CHEM 2219	Organic Chemistry I Lab	1
CHEM 2229	Organic Chemistry II Lab	1
2 semesters of Physics and labs:		
PHYSICS 1145	College Physics I	4
or PHYSICS 1135	Engineering Physics I	

PHYSICS 2145	College Physics II	4
or PHYSICS 2135	Engineering Physics II	

The following classes are highly recommended:

BIO SCI 3333	Human Anatomy and Physiology I	3
BIO SCI 3343	Human Anatomy and Physiology II	3
BIO SCI 3359	Physiology Lab	1
CHEM 4610	General Biochemistry	3
PREMED 3010	Communication Workshop for the Pre-Health Student	1

Bachelor of Arts

Biological Sciences

Secondary Education Emphasis Area

Degree Requirements

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

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

In order to successfully complete this emphasis area, students must have an 3.0 education GPA. Students must also pass the appropriate content assessment. Students must attain at least a 2.5 GPA for all biology courses and professional education courses required by the Missouri Department of Elementary and Secondary Education for teacher certification. 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. Students must also meet all requirements listed under the teacher education website including passing the state-required assessments.

A degree in this emphasis area requires 127 credit hours. The required courses are provided below. A minimum grade of “C” is required by the department in all biological sciences courses counted toward this degree. Humanities and Social Science courses for the B.A. must fulfill the Missouri S&T general education requirements applicable to the student’s catalog year.

Humanities: 18 semester hours		
ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
or ENGLISH 3560	Technical Writing	

SP&M S 1185	Principles Of Speech	3
At least one course in each of the following: Literature, Philosophy and Fine Arts		9
Social Sciences: 15 semester hours		
HISTORY 1100	Early Western Civilization	3
HISTORY 1200	Modern Western Civilization	3
HISTORY 3530	History of Science	3
POL SCI 1200	American Government	3
PSYCH 1101	General Psychology	3
Mathematics/Physical Science: 9 semester hours		
GEOLOGY 1110	Physical and Environmental Geology	3
MATH 1103	Fundamentals Of Algebra [1]	3
PHYSICS 1145	College Physics I	3
or PHYSICS 1505	Introductory Astronomy	
Computer Science/Statistics: 3 semester hours		
3 semester hours of Computer Science or Statistics		3
Chemistry: 15 semester hours		
CHEM 1100	Introduction To Laboratory Safety & Hazardous Materials	1
CHEM 1310	General Chemistry I	4
CHEM 1319	General Chemistry Laboratory	1
CHEM 1320	General Chemistry II	3
CHEM 2210	Organic Chemistry I	3
CHEM 2220	Organic Chemistry II	3
Biological Sciences: 26 semester hours		
BIO SCI 1201	Biological Sciences First Year Seminar	1
BIO SCI 1213	Principles of Biology	3
or BIO SCI 1113	General Biology	
BIO SCI 1219	General Biology Lab	1
BIO SCI 1223	Biodiversity	3

BIO SCI 1229	Biodiversity Lab	1
BIO SCI 1173	Introduction to Environmental Sciences	3
BIO SCI 2213	Cell Biology	3
BIO SCI 2219	Cell Biology Laboratory	1
BIO SCI 2223	General Genetics	3
BIO SCI 2263	Ecology	3
BIO SCI 3233	Evolution	3
BIO SCI 4020	Senior Service Project	1
Education: 41 semester hours		
EDUC 1074	Foundations of Education in a Diverse Society	3
EDUC 1104	Teacher Field Experience I	1
~~EDUC 1164~~	~~Teacher Field Experience II~~	~~2~~
EDUC 2310	Education Of The Exceptional Child	3
EDUC 3164	Teacher Field Experience II	2
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3216	Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3298	Teacher Field Experience III	1
EDUC 3340	Assessment of Student Learning	3
EDUC 4298	Student Teaching Seminar	1
EDUC 4299	Student Teaching	12
PSYCH 2300/ EDUC 2102	Educational Psychology	3
PSYCH 3310	Developmental Psychology	3

1

MATH 1103 does not count towards mathematics Gen. Ed. requirement.

Justification for request

Education department is changing EDUC 1164 to EDUC 3164. Per the justification on the CC form, "Because of the 60 hour pathway legislation, we need to change this course to a 3000

level because it is not part of the first two years of community college, transfer coursework. This is one of a series of changes we are making to our program in anticipation of those requirements. We will be making the individual course changes and then submitting one DCC form to capture all of them."

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents

Reviewer Comments

Hannah Johnson (hjh9x) (10/15/26 2:31 pm): Alphabetized course listings.

Program Change Request

Date Submitted: 09/28/26 4:08 pm

Viewing: BUS&MS-BS : Business and Mgmt Systems BS

Last approved: 04/08/26 4:08 pm

Last edit: 10/15/26 2:05 pm

Changes proposed by: Crystal Wilson (wilsoncry)

Catalog Pages Using this Program

Business and Management Systems

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Science
Academic Level	Undergraduate
Program Code	BUS&MS-BS
Department	Jaggi School of Business
Discipline	Business
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. 09/29/26 8:17 pm Cassie Elrod (cassa): Approved for RBUS&IT Chair
2. 10/19/26 11:13 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:38 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:26 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Aug 5, 2014 by barryf
2. Jan 30, 2015 by barryf
3. Jun 17, 2015 by pantaleoa
4. Jul 14, 2015 by pantaleoa
5. Mar 7, 2016 by barryf
6. Nov 2, 2018 by barryf
7. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)
8. Jun 14, 2024 by Cassie Elrod (cassa)
9. Jul 15, 2024 by Crystal Wilson (wilsoncry)
10. Jul 1, 2025 by Cecil Eng Huang Chua (cchua)
11. Jul 31, 2025 by Crystal Wilson (wilsoncry)
12. Dec 24, 2025 by Cecil Eng Huang Chua (cchua)
13. Apr 8, 2026 by Crystal Wilson (wilsoncry)

Business and Mgmt Systems BS

CIP Code	52.9999 - Business, Management, Marketing, and Related Support Services, Other.

Program Requirements and Description

Bachelor of Science

Business and Management Systems

In Business and Management Systems, the Bachelor of Science degree consists of 120 credit hours. All undergraduate students in Business and Management Systems are required to complete a General Education Requirements Core, including courses in Humanities, Social Sciences, Mathematics, Science, and Communication Skills.

A common core of courses helps provide students with skills to succeed in a fast-changing and globalized environment. Business core courses with business and information science and technology electives provide students with comprehensive knowledge in technological business disciplines.

A minimum grade of "C" is required in the courses designated accordingly.

Students have 11 credit hours for free electives.

Freshman Year

First Semester	Credits	Second Semester	Credits
BUS 1110	3	ENGLISH 2560 or TCH COM 2560[3]	3
BUS 1810	1	IS&T 1750	3
ENGLISH 1120[3]	3	MATH 1210[3]	5
PSYCH 1101[3]	3	POL SCI 1200[3]	3
Science Elective[1,3]	3	Science Elective[1,3]	3
Science Lab[3]	1		
	14		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
BUS 1210	3	ECON 1100[3]	3
ECON 1200[3]	3	ERP 2110	3
Free Elective	3	FINANCE 2150	3
IS&T 1551	3	IS&T 1552	3
SP&M S 1185[3]	3	IS&T 4654	3
	15		15

Junior Year

First Semester	Credits	Second Semester	Credits
Business Electives	6	Business Elective	3
BUS 3220	3	BUS 2910	3
ECON 1300 or STAT 1115	3	BUS 5510	3
MKT 3110	3	BUS 5730	3
~~STAT 1115~~	~~3~~	Free Elective	3
	15		15

Senior Year

First Semester	Credits	Second Semester	Credits
Business Elective	3	Business Elective	3
BUS 5111	3	BUS 5360	3
FINANCE 5310	3	BUS 5980	3
Free Elective	3	Fine Art, or Humanities Elective[2,3]	3
MKT 5310 or BUS 5150	3	Free Elective	2
	15		14

Total Credits: 120

A grade of “C” or better is required in the following courses for graduation: IS&T 1551, IS&T 1552, IS&T 1750, IS&T 4654, ERP 2110, FINANCE 2150, FINANCE 5310, MKT 3110, MKT 5310 or BUS 5150, ECON 1100, ECON 1200, BUS 1110, BUS 1210, BUS 2910 , BUS 3220, BUS 5111, BUS 5360, BUS 5510, BUS 5730, BUS 5980, and all Business Electives (any BUS, ERP, FINANCE, MKT or IST designated course at the 3000-level or above).

1

General education elective courses in two of the following areas: biology, chemistry, geology, or physics must fulfill the Missouri S&T general education requirements applicable to the students catalog year.

2

General education elective courses in two of the following areas: art, history, music, or theater must fulfill the Missouri S&T general education requirements applicable to the students catalog year.

3

General education discipline required course. These fulfill the Missouri S&T general education requirements applicable to the student’s catalog year.

Bachelor of Science

Business and Management Systems

Military Science and Leadership Emphasis Area

Degree Requirements

You may earn a B.S. degree in business and management systems from Missouri S&T with an emphasis in Military Science as a member of the ROTC Program at Missouri S&T. This program can be completed in four academic years.

Students interested in this emphasis area should consult with an advisor for business and management systems degree program in the Jaggi School of Business.

In order to successfully complete this emphasis area, students must maintain a cumulative GPA of at least 2.0. Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet this GPA requirement to be eligible for the emphasis area.

A minimum grade of "C" is required in all courses designated BUS, MKT, FINANCE, IS&T, ECON, or ERP that are counted toward this degree and/or emphasis area.

Successful completion of coursework in a minor listed below will count as the corresponding number of credit

hours in the Military Science and Leadership Emphasis Area. These courses are in lieu of business/free/humanities electives in the Business and Management Systems Bachelor of Science curriculum.
Military Aerospace Minor (12 credit hours)
Adaptive Leadership Minor (15 credit hours)

Secondary Education Emphasis Area

Degree Requirements

You may earn a B.S. degree in business and management systems from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with this emphasis area. 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.

Students interested in this emphasis area should consult with both an advisor for business and management systems education majors in the business and management systems department and an advisor in the teacher education department.

In order to successfully complete this emphasis area, students must maintain at least a 2.5 GPA average for all business content and professional education courses required by the Missouri Department of Elementary and Secondary Education for teacher certification. To be eligible for student teaching and certification, students must have a 2.5 content GPA and a 3.0 education GPA. Students must also pass the appropriate content assessment. Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet both these GPA requirements to be accepted into the program. Students must also meet all requirements listed under the teacher education program in this catalog. Students who do not meet all the teacher certification requirements will not be eligible for the secondary education emphasis area, even if they have completed all required course work.

The required courses for a secondary education emphasis with the Bachelor of Science in Business and Management Systems degree are listed below. A minimum grade of "C" is required in all courses designated BUS, MKT, FINANCE, IS&T, ECON, or ERP that are counted toward this degree.

Education

EDUC 1074	Foundations of Education in a Diverse Society	3
EDUC 1104	Teacher Field Experience I	1
~~EDUC 1164~~	~~Teacher Field Experience II~~	~~2~~
EDUC 2310	Education Of The Exceptional Child	3
EDUC 3164	Teacher Field Experience II	2
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3216	Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3290	Coordination of Cooperative Education	3

EDUC 3298	Teacher Field Experience III	1
EDUC 3340	Assessment of Student Learning	3
EDUC 4298	Student Teaching Seminar	1
EDUC 4299	Student Teaching	12
PSYCH 2300	Educational Psychology	3
PSYCH 3310	Developmental Psychology	3

Justification for request

Education department is changing EDUC 1164 to EDUC 3164. Per the justification on the CC form, "Because of the 60 hour pathway legislation, we need to change this course to a 3000 level because it is not part of the first two years of community college, transfer coursework. This is one of a series of changes we are making to our program in anticipation of those requirements. We will be making the individual course changes and then submitting one DCC form to capture all of them."

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents

MDHE Approval Letter_S&T_April 2024.pdf

New Emphasis-BIT-Mil Sci and Leadership.pdf

Reviewer Comments

Hannah Johnson (hjh9x) (10/07/26 11:10 am): I added ECON 1300 as an OR class to STAT 1115 per email from Dr. Cecil.

Hannah Johnson (hjh9x) (10/15/26 2:05 pm): Placed course listing and plan of study grid in alpha/numerical order.

Key: 148

Program Change Request

Date Submitted: 09/28/26 4:09 pm

Viewing: CHEM-BA : Chemistry BA

Last approved: 04/24/26 4:25 pm

Last edit: 09/28/26 4:09 pm

Changes proposed by: Crystal Wilson (wilsoncry)

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. 09/29/26 11:22 am Chariklia Sotiriou-Leventis (cslevent): Approved for RCHEMIST Chair
2. 10/19/26 10:56 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 11:43 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/26/26 8:27 am 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 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)
14. Apr 24, 2026 by Thomas Schuman

Rationale for Inactivation

(tschuman)

Supporting Documents

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
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	HISTORY 1100	3
CHEM 1319	1	Humanities and Fine Arts Elective[1]	3
ENGLISH 1120	3	MATH 1215	4
MATH 1214 or 1210 ***and*** 1211	4		
	14		15

Sophomore Year

First Semester	Credits	Second Semester	Credits
Biological Science Elective	3	Behavioral and Social Science Elective[1]	3
CHEM 2210	3	CHEM 2220	3
CHEM 2219	1	CHEM 2229	1
Foreign Language Elective	4	ENGLISH 1160 or 3560	3
HISTORY 1200	3	Foreign Language Elective	4
		Minor Degree Elective	3
	14		17

Junior Year

First Semester	Credits	Second Semester	Credits
CHEM 2510	4	Behavioral and Social Science Elective[1]	3
Foreign Language Elective	4	CHEM 2410	3
PHYSICS 1145 or 1135	4	Chemistry Elective	3
STAT 3113	3	Humanities and Fine Arts Elective[1]	3
		PHYSICS 2145 or 2135	4
	15		16

Senior Year

First Semester	Credits	Second Semester	Credits
Behavioral and Social Science Elective[1]	3	Behavioral and Social Science Elective[1]	3
CHEM 3419	1	Chemistry Elective	3
CHEM 4010 or 4099	1	Humanities and Fine Arts Elective[1]	3
Chemistry Elective	3	Minor Degree Electives	6
Humanities and Fine Arts Elective (Literature)[1]	3		
Minor Degree Elective	3		

	14		15

Total Credits: 120

[1]

Humanities and Fine Arts Elective and the Behavioral and Social Science 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. ~~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 3164	2	HISTORY 3530, or PHILOS 4345, or HISTORY 3534	3
EDUC 3170	3	PSYCH 4310 or EDUC 2310	3
PHYSICS 1505 or GEOLOGY 1110	3		
	16		16

Senior Year

First Semester	Credits	Second Semester	Credits
CHEM 4610	3	EDUC 4298	1
EDUC 3280	3	EDUC 4299	12
EDUC 3340	3		
PHILOS 1105	3		
PSYCH 3310	3		
	15		13

Total Credits: 121

Students must complete a minimum of 121 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. 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

Education department is changing EDUC 1164 to EDUC 3164. Per the justification on the CC form, "Because of the 60 hour pathway legislation, we need to change this course to a 3000 level because it is not part of the first two years of community college, transfer coursework. This is one of a series of changes we are making to our program in anticipation of those requirements. We will be making the individual course changes and then submitting one DCC form to capture all of them."

Attach Budget

System Approval Letter

MDHE Approval

Supporting Bachelor of Arts Chemistry sp2025 redline.docx

Documents

Reviewer
Comments

Key: 151

Program Change Request

Date Submitted: 09/30/26 8:43 am

Viewing: CR ENG-BS : Ceramic Engineering BS

Last approved: 07/15/26 1:51 pm

Last edit: 10/15/26 9:45 am

Changes proposed by: David Lipke (lipked)

Catalog Pages Using this Program

Ceramic Engineering

Final Catalog	FS2027-SP2028
Rationale for Inactivation	
Supporting Documents	

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Science

In Workflow

1. **RMATSENG 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

CIM Prospectus

Academic Level	Undergraduate
Program Code	CR ENG-BS
Department	Materials Science & Engineering
Discipline	Ceramic Engineering

Approval Path

1. 09/30/26 8:51 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/19/26 9:44 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 12:48 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Oct 10, 2013 by Lahne Black (lahne)
2. Apr 22, 2014 by Lahne Black (lahne)
3. Aug 6, 2014 by F. Scott Miller (smiller)
4. Jun 19, 2015 by F. Scott Miller (smiller)
5. Jul 15, 2015 by pantaleoa
6. Jun 28, 2017 by F. Scott Miller (smiller)
7. Mar 3, 2020 by ershenb
8. Apr 6, 2022 by F.

Offered by

Title

Scott Miller (smiller)
9. Jun 14, 2024 by David Lipke (lipke)
10. Dec 20, 2024 by Crystal Wilson (wilsoncry)
11. Jul 1, 2025 by David Lipke (lipke)
12. Dec 24, 2025 by Crystal Wilson (wilsoncry)
13. Jul 15, 2026 by David Lipke (lipke)

Ceramic Engineering BS

CIP Code 14.0601 - Ceramic Sciences and Engineering.

Purpose

Intended Audience

Program-Specific Admission

Program Requirements and Description

Bachelor of Science
Ceramic Engineering

For the Bachelor of Science degree in Ceramic Engineering a minimum of 128 credit hours is required. A cumulative grade point average of at least 2.0 is required for all courses applied toward the degree, as well as for all required courses in the major field of study.

Freshman Year

First Semester	Credits	Second Semester	Credits
CHEM 1310[1]	4	CHEM 1320[1]	3
CHEM 1319	1	MATH 1215[1]	4
ENGLISH 1120	3	MECH ENG 1720	3
FR ENG 1100	1	PHYSICS 1135[1]	4
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	Programming Elective[1,2]	3
MATH 1214 or 1211[1]	4		
	16		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
CER ENG 2010	0.5	CER ENG 2120	3
CER ENG 2110[1]	3	CER ENG 2325[1]	2
CER ENG 2200[1]	3	CIV ENG 2200[1]	3
CER ENG 2315[1]	2	ENGLISH 1160, or 3560, or SPM S 1185[5]	3
~~CER ENG 3230[1]~~	~~3~~	General Education Elective[3]	3
MATH 2222	4	STAT 3113 or 3117	3
PHYSICS 2135[1]	4		
	16.5		17

Junior Year

First Semester	Credits	Second Semester	Credits
CER ENG 3010	0.5	~~CER ENG 3410~~	~~3~~
~~CER ENG 3210~~	~~3~~	CER ENG 3415	3
CER ENG 3220[1]	3	CER ENG 3425	2
CER ENG 3315[1]	2	CER ENG 4310	3
CER ENG 3320	3	General Education Elective[3]	3
CIV ENG 2210[1]	3	PHYSICS 2305[1]	3
MATH 3304[1]	3	Technical Elective[4]	3
	14.5		17

Senior Year

First Semester	Credits	Second Semester	Credits
CER ENG 4096[1]	3	CER ENG 4097	3
CER ENG 4250	3	CER ENG 4220	3
CER ENG 4410	3	CER ENG 4240	3
General Education Elective[3]	3	General Education Elective[3]	3
Technical Elective[4]	3	Technical Elective[4]	3
	15		15

Total Credits: 128

1

A grade of "C" or better is required in the following courses to satisfy prerequisite requirements for subsequent coursework and to meet graduation criteria: CER ENG 2110, CER ENG 2200, CER ENG 2315, CER ENG 2325, CER ENG 3220, CER ENG 3315, CER ENG 4096, CHEM 1310, CHEM 1320, CIV ENG 2200, CIV ENG 2210, MATH 1214 or MATH 1211, MATH 1215, MATH 3304, PHYSICS 1135, PHYSICS 2135, PHYSICS 2305, and in both COMP SCI 1972 and COMP SCI 1982 or COMP SCI 1973 and COMP SCI 1983.

2

Both COMP SCI 1972 and COMP SCI 1982, or both COMP SCI 1973 and COMP SCI 1983.

3

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

4

Students may choose to obtain a Ceramic Engineering degree with or without a declared emphasis area. A major change request form is required to add an emphasis area option to the degree program. For students who seek a Ceramic Engineering degree without a formal emphasis, these emphasis areas may guide the choice of their Technical Electives. Technical Electives must be selected from upper-level (i.e., 2000-level with pre-requisite or 3000-level and above) courses with advisor approval in any of the following disciplines: MATH, STAT, PHYS, CHEM, BIO SCI, GEOLOGY, COMP SCI, IS&T, ENG MGT, or any engineering program. Courses designated BUS, ECON, EDUC, ERP, MIL SCI, or any Humanities or Social Sciences program do not satisfy Technical Electives requirements.

5

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.

Emphasis Areas

Requires 9 or more credit hours from approved course lists. Up to 3 credit hours CER ENG ~~of Cer Eng~~ 4099-Research permitted with department approval. Experimental courses 3001, 4001, 5001 not listed below require department approval to apply toward an emphasis area.

Biomaterials

BME 4100	Biomedical Polymers and Metals	3
BME 5200	Materials as Hard Tissue Devices	3
CER ENG 3110	Introduction to Biomedical Engineering	3
MS&E 5210	Tissue Engineering	3
MS&E 5310	Biomaterials	3

Computational Materials Science and Engineering

CHEM 5001	Special Topics (Computational Modeling in Chemistry)	3
MECH ENG 5212	Introduction to Finite Element Analysis	3

MS&E 5001	Special Topics (Applied Artificial Intelligence for Materials Engineering)	3
PHYSICS 5409	Computational Physics Laboratory	3
SEMI ENG 4100	Semiconductor Device Simulation	3
SEMI ENG 4200	Semiconductor Process Simulation	3
Energy Materials		
CIV ENG 5642	Sustainability, Population, Energy, Water, and Materials	3
ENG MGT 5513	Energy and Sustainability Management Engineering	3
GEO ENG 5556	Renewable Energy Systems	3
MECH ENG 5537	Fuel Cell Principles	3
MECH ENG 5541	Applied Energy Conversion	3
MIN ENG 4524	Energy Economics	3
MS&E 5230	Energy Materials	3
Functional Materials		
CER ENG 3240	Applied Glass Forming	3
CER ENG 5420	Optical Properties Of Materials	3
PHYSICS 4323	Elementary Solid State Physics	3
PHYSICS 5353	Quantum Materials	3
SEMI ENG 2100	Fundamentals of Semiconductor Materials	3
SEMI ENG 3100	Semiconductor Materials Processing	3
SEMI ENG 3101	Semiconductor Materials Processing Laboratory	3
SEMI ENG 4101	Semiconductor Device Fabrication and Testing Laboratory	3
Materials Characterization and Analysis		
CER ENG 5115	X-Ray Diffraction Analysis	3
CHEM 2510	Analytical Chemistry I	4
CHEM 3310	Inorganic Chemistry I	3
CHEM 3329	Inorganic Chemistry Laboratory	1
CHEM 3510	Analytical Chemistry II	4
MET ENG 5520	Electron Microscopy	3

Materials for Extreme Environments

CER ENG 5250	Refractories	3
MET ENG 4637	Material Selection, Fabrication, And Failure	3
MET ENG 5170	Nuclear Materials I	3
MET ENG 5310	Corrosion and Its Prevention	3
MS&E 5330	Composite Materials Science and Engineering	3
EXP ENG 5721	Specialty Uses of Energetic Materials	3

Justification for request

Updated course listings due to renumbering of Thermodynamics of Materials, Characterization of Materials. Added additional approved courses for elective areas.

Attach Budget

System Approval Letter

MDHE Approval — MDHE Approval Letter_ST_June 2026.pdf

Supporting Documents — Program Change (PC) Form.docx; Provost approval.pdf; CeramicEngineeringAY26-Revised Approved.pdf

Reviewer Comments

Hannah Johnson (hjh9x) (10/06/26 11:29 am): Hyperlinked CER ENG 2200 and MATH 1211 in footnote 1.

Hannah Johnson (hjh9x) (10/06/26 12:02 pm): Added a space after 'and' in footnote 5. Replaced CER ENG 3230 with CER ENG 2200 in the plan of study grid and replaced CER ENG 3410 with CER ENG 3415 in the plan of study grid in accordance with the updated CC's.

Hannah Johnson (hjh9x) (10/07/26 3:45 pm): Changed title of CHEM 5001 special topics in the Computational Materials Science and Engineering from "Practical Computational Modeling for Chemistry and Materials Science" to Computational Modeling in Chemistry per email from David Lipke.

Hannah Johnson (hjh9x) (10/15/26 9:45 am): Removed PHYSICS 5001 Special Topics (Quantum Materials) and replaced it with the new CC PHYSICS 5353 per email from Dr. Lipke.

Program Change Request

Date Submitted: 05/07/26 11:51 am

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

Last approved: 04/27/26 1:55 pm

Last edit: 10/19/26 11:14 am

Changes proposed by: Beth Kania-Gosche (bakm75)

Catalog Pages Using this Program

Education

In Workflow

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

Approval Path

1. 06/05/26 2:26 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
2. 10/19/26 11:24 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:43 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:28 am 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

Rationale for Inactivation

Crystal Wilson (wilsoncry)
7. May 19, 2023 by jpnfd
8. May 19, 2023 by jpnfd
9. May 19, 2023 by 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)
15. Apr 27, 2026 by Crystal Wilson (wilsoncry)

Supporting Documents

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Science
CIM Prospectus	
Academic Level	Undergraduate
Program Code	EDUC-BS
Department	Education

Discipline Education

Offered by

Title
Education BS

CIP Code

Purpose

Intended Audience

Program-Specific Admission

Program Requirements and Description

Bachelor of Science in Education

Overview

The Department of Education offers a degree in education with options for emphases in educational studies, early childhood (birth-grade 3), elementary (grades 1-6), middle school language arts, middle school mathematics, middle school science, and ~~or~~ middle school social science. ~~science. The educational studies emphasis area offers an option for students working in informal contexts outside of public schools.~~ 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. ~~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.~~ ~~Program Learning Outcomes~~ The final semester of certification programs is student teaching when students ~~program learning outcomes~~ are immersed full time ~~the Missouri Teacher Standards. These are the same standards principals use to evaluate practicing teachers~~ in a school setting for 16 weeks, except for the educational studies emphasis area. ~~Missouri. These outcomes are assessed throughout the program and in the student teaching experience; students must demonstrate evidence of satisfactory progress on each outcome.~~

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. ~~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.~~ 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. ~~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. ~~standards~~
4. Use a variety of instructional strategies and resources to encourage students' critical thinking, problem solving, and performance skills. ~~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. ~~members~~

Core Curriculum

EDUC 1074	Foundations of Education in a Diverse Society	3
~~EDUC 1164~~	~~Teacher Field Experience II~~	~~2~~
EDUC 1104	Teacher Field Experience I	1
EDUC 1111	Substitute Teacher Training	1
EDUC 1240	Technology and AI Use in Education	3
EDUC 2102	Educational Psychology	3
or PSYCH 2300	Educational Psychology	
EDUC 2211	Child Development	3
or PSYCH 3310	Developmental Psychology	
EDUC 2310	Education Of The Exceptional Child	3
or PSYCH 4310	Psychology Of The Exceptional Child	
EDUC 3164	Teacher Field Experience II	2
EDUC 3216	Literacy in the Content Area	3
EDUC 3298	Teacher Field Experience III	1
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		39

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	
HISTORY 1200	Modern Western Civilization	3
or POL SCI 1200	American Government	
Humanities, Arts, and Social Science Courses		12
Math General Education Course		3
Natural Science Courses in Two Disciplines including a minimum 1 credit hour lab		7

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. ~~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.~~ 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. ~~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.~~ 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 in special education settings from birth through third grade in ~~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 2430	Diverse Literature for Children	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	3

EDUC 3221	Methods of Teaching Math	3
~~EDUC 3430~~	~~Diverse Literature for Children~~	~~3~~
EDUC 3530	Teaching Integrated Social Studies and Humanities	3
Total Credits		36

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

Early childhood special education is also available as a certification area. Students will take the appropriate Praxis exam, as well as field experience placements in those settings, in addition to the two courses below.

EDUC 4325	Language Development for Exceptional Learners	3
EDUC 4410	Behavior Management in Special Education	3

Emphasis Area: Elementary

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

EDUC 2430	Diverse Literature for Children	3
EDUC 3203	Introduction to STEM Education	3
~~EDUC 3430~~	~~Diverse Literature for Children~~	~~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	3
EDUC 3221	Methods of Teaching Math	3
EDUC 3222	Geometric Concepts for Elementary Teachers	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 the designated ~~their content area~~ coursework.

EDUC 2430	Diverse Literature for Children	3

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

COMP SCI 1500	Computational Problem Solving	3
or IS&T 1551	Implementing Information Systems: User Perspective	
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3203	Introduction to STEM Education	3
EDUC 3221	Methods of Teaching Math	3
EDUC 3222	Geometric Concepts for Elementary Teachers	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3298	Teacher Field Experience III	1
EDUC 3335	Curriculum And Instruction Of The Middle School	3
MATH 1103	Fundamentals Of Algebra	3
MATH 1120	College Algebra	3-5

or MATH 1140	College Algebra	
MATH 1214	Calculus I	4-5
or MATH 1210	Calculus I-A	
MATH 1215	Calculus II	4
or MATH 1211	Calculus I-B	
or MATH 1212	Survey of Calculus	
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. ~~area. Students must have a 2.5 GPA in the designated coursework.~~ Students must have a 2.5 GPA in the designated coursework.

BIO SCI 1113	General Biology	3
or BIO SCI 1213	Principles of Biology	
BIO SCI 1173	Introduction to Environmental Sciences	3
BIO SCI 1219	General Biology Lab	1
BIO SCI 2223	General Genetics	3
CHEM 1310	General Chemistry I	4
CHEM 1319	General Chemistry Laboratory	1
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3203	Introduction to STEM Education	3
EDUC 3220	Teaching Science	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3298	Teacher Field Experience III	1
EDUC 3335	Curriculum And Instruction Of The Middle School	3
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 1505	Introductory Astronomy	3-4
or PHYSICS 1145	College Physics I	
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

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

DESE Approved American History elective		3
DESE Approved World History Electives		6
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3298	Teacher Field Experience III	1
EDUC 3335	Curriculum And Instruction Of The Middle School	3
EDUC 3350	Social Studies In The Elementary School	3
EDUC 3530	Teaching Integrated Social Studies and Humanities	3
HISTORY 1100	Early Western Civilization	3
or HISTORY 1200	Modern Western Civilization	
HISTORY 1300	American History To 1877	3
or HISTORY 1310	American History Since 1877	
History Elective		3
PSYCH 4600	Social Psychology	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. ~~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). ~~hours). Students will elect sufficient additional courses to complete a minimum of 120 credit hours in consultation with their advisor.~~ 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
Total Credits		30

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
Total Credits		30

General Science Content Area

BIO SCI 1113	General Biology	3
or BIO SCI 1213	Principles of Biology	
BIO SCI 1173	Introduction to Environmental Sciences	3
BIO SCI 1219	General Biology Lab	1
BIO SCI 1223	Biodiversity	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
Total Credits		35

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
Total Credits		30

Justification for request

The Education department has a new course on AI and Technology in education in response to the campus AI initiative. This course is also aligned with a technology in education course offered at many community colleges which needs to be included in our elementary program as part of the Core 60 legislation. We have also added options for Child Development because that is also a course in the Core 60 legislation.

Stakeholder feedback has indicated early childhood special education is an in demand field, especially with the Rolla Early Childhood Center opening in fall. We have applied for that certification area from DESE and have adjusted the early childhood emphasis to allow for that option.

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

Hannah Johnson (hjh9x) (06/08/26 11:02 am): Corrected some spacing errors.

Hannah Johnson (hjh9x) (06/08/26 11:06 am): *Corrected spacing errors where there were two spaces after periods. (explaining the green and red markup in those areas)

Hannah Johnson (hjh9x) (06/08/26 11:14 am): Alphabetized course listings.

Hannah Johnson (hjh9x) (10/07/26 11:46 am): Alphabetized the core curriculum and the gen ed section.

Crystal Wilson (wilsoncry) (10/19/26 11:14 am): Added educational studies to list of emphasis areas.

Key: 344

Program Change Request

Date Submitted: 04/15/26 3:08 pm

Viewing: EDYC-CTU : Undergraduate Certificate in Education of Young Children CTU

Last approved: 02/24/23 10:13 am

Last edit: 10/13/26 12:07 pm

Changes proposed by: Beth Kania-Gosche (bakm75)

Catalog Pages Using this Program

Education

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Certificate
Academic Level	Undergraduate
Program Code	EDYC-CTU
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. 04/15/26 3:13 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
2. 10/19/26 11:23 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:44 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Feb 24, 2023 by Beth Kania-Gosche (bakm75)

Undergraduate Certificate in Education of Young Children CTU

CIP Code 13.1210 - Early Childhood Education and Teaching.

Intended Audience

Main Campus Students

Program Requirements and Description

Undergraduate Certificate in Education of Young Children

Courses in this certificate will explore creation of high quality care for young children, from birth to eight years of

age. ~~age. The certificate courses emphasize engagement of diverse families and collaboration with community resources. The courses in this program are aligned with the Core Competencies for Early Childhood and Youth Development programs for Missouri and Kansas and the national Child Development Associate training requirements.~~ The certificate courses emphasize engagement of diverse families and collaboration with community resources. The courses in this program ~~Additional courses, including student teaching,~~ are aligned with ~~required for~~ the Core Competencies for Early Childhood and Youth Development programs ~~Missouri teaching certificate in early childhood. However, completion of all certificate courses meets the training requirement~~ for Missouri and Kansas and the national Child Development Associate training requirements. ~~Development Associate, a nationally recognized credential. Additional assessments and clock hours in a childcare setting are required for obtaining that credential; this certificate represents only the training completion.~~

The on campus childcare center at S&T provides real world experiences for students interested in working with this age group. ~~group. This certificate would add specialized knowledge of early childhood to existing programs such as elementary teacher certification and psychological sciences. Individuals seeking to manage or work in preschools, daycares, or other educational settings with young children would benefit from this certificate.~~ This certificate would add specialized knowledge of early childhood to existing programs such as elementary teacher certification and psychological sciences. Individuals seeking to manage or work in preschools, daycares, or other educational settings with young children would benefit from this certificate.

Additional courses, including student teaching, are required for the Missouri teaching certificate in early childhood. However, completion of all certificate courses meets the training requirement for Child Development Associate, a nationally recognized credential. Additional assessments and clock hours in a childcare setting are required for obtaining that credential; this certificate represents only the training completion.

The following courses are required, for a total of 18 credit hours:

~~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 2211	Child Development	3
EDUC 2401	School, Family, and Community Partnerships	3
~~EDUC 3211~~	~~Child Development~~	~~3~~
EDUC 2430	Diverse Literature for Children	3
EDUC 2440	Observation and Assessment of Young Children	3

~~Additional courses, including student teaching, are required for the Missouri teaching certificate in early childhood. However, completion of all certificate courses meets the training requirement for Child Development Associate, a nationally recognized credential. Additional assessments and clock hours in a childcare setting are required for obtaining that credential; this certificate represents only the trainingcompletion.~~

Justification for request

A course change was submitted for EDUC 3211 to be changed to a lower level course to better match community colleges. The state legislature is requiring elementary programs to all have the same 60 hour pathway. This has required us to change the Child Development course numbering and requirement for both elementary and early childhood emphasis areas. The DCC will be submitted for the BS education once the current changes are completely through the process. We will have additional changes to the BS in Education based on the legislative changes, not just changing the Child Development course number.
We have eliminated the early childhood introductory course from this certificate after examining our curriculum and replaced it with Children's literature which is used by another program. This will help us offer more streamlined curriculum.

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents
CT-UGCT-Education of Young Children.pdf
MST PC November 2022.pdf

Reviewer Comments

Hannah Johnson (hjh9x) (04/23/26 8:38 am): Alphabetized course listing.
Hannah Johnson (hjh9x) (05/05/26 11:22 am): Removed EDUC 3430 and EDUC 3211, and replaced with their new course ID: EDUC 2430 and 2211.
Hannah Johnson (hjh9x) (10/13/26 12:07 pm): Removed double spacing in the CT description, which did not change at all.

Key: 391

Program Change Request

Date Submitted: 09/28/26 4:11 pm

Viewing: ENV SCI-BS : Environmental Science BS

Last approved: 07/14/26 4:26 pm

Last edit: 10/16/26 11:15 am

Changes proposed by: Crystal Wilson (wilsoncry)

Catalog Pages Using this Program

Environmental Science

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. 09/30/26 4:07 pm Gina Yosten (gyxmr): Approved for RBIOLSCI Chair
2. 10/19/26 11:06 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 11:43 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Jan 24, 2022 by Nancy Winterburg (nancym)
2. Jan 24, 2022 by esdk3
3. Jan 24, 2022 by esdk3
4. May 2, 2022 by Katie Shannon (shannonk)
5. Feb 17, 2023 by Robin Verble (verbler)
6. Jun 6, 2023 by Nancy Winterburg (nancym)
7. Jul 14, 2023 by jpnfd
8. Apr 30, 2024 by Dev Niyogi (niyogid)
9. Jul 5, 2024 by Crystal Wilson (wilsoncry)
10. Mar 17, 2025 by Joel Burken (burken)
11. Jul 1, 2025 by Crystal Wilson (wilsoncry)
12. Jul 17, 2025 by Crystal Wilson (wilsoncry)
13. Aug 27, 2025 by Crystal Wilson (wilsoncry)
14. Mar 24, 2026 by Katie Shannon (shannonk)
15. Mar 26, 2026 by Hannah Johnson (hjh9x)

Rationale for Inactivation

16. Jul 14, 2026 by Robin Verble (verbler)

Supporting Documents

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Science
CIM Prospectus	
Academic Level	Undergraduate
Program Code	ENV SCI-BS
Department	Biological Sciences
Discipline	Environmental Sciences
Offered by	
Title	Environmental Science BS
CIP Code	03.0104 - Environmental Science.

Purpose

Intended Audience

Program-Specific Admission

Program Requirements and Description

Bachelor of Science in Environmental Science

An Environmental Science degree at Missouri S&T commences with a first-year seminar course that is taken concurrently with an introductory environmental science course, creating familiar student cohorts that can support and motivate one another through the program. Throughout their four years in the program, students are trained in five core areas: economics, biology, geology, environmental engineering, and humanities. In addition, they build foundational skills in mathematics, physical science, and communications. As they progress through the program, students increasingly connect ideas from among and within core areas to build their understanding of the integrated multidisciplinary concepts in environmental science. During their junior and senior years, students will be able to customize their degrees by selecting from a diverse array of elective courses within core areas. The degree's flexible upper division elective choices also allow students to specialize and earn minors in core areas if they choose to do so.

Students apply the skills they learn in the classroom in hands-on laboratory and field courses. Students will finish their senior year with a capstone course that will be designed to engage them in professional development, connect them to career opportunities, hone their research and presentation skills through hands-on projects, and foster lifelong collegial relationships with their peers and instructors through intensive group work.

This curriculum benefits from a flexible design that allows students who may be transitioning from other programs on campus to complete the program in a timely manner. In addition, the degree creates opportunities for students to complete multiple minors within the degree, adding focus and strength to the interdisciplinary foundation. Students should choose free electives that, along with required courses, fulfill the general education requirements applicable to the student's catalog year.

Freshman Year

First Semester	Credits	Second Semester	Credits
BIO SCI 1173	3	BIO SCI 1223	3
CHEM 1100	1	BIO SCI 1229	1
CHEM 1310	4	CHEM 1320 or GEOLOGY 3410	3
CHEM 1319	1	ECON 1100	3
ENGLISH 1120	3	ENGLISH 1160	3
ENV SCI 1110	1		
GEOLOGY 1110	3		
	16		13

Sophomore Year

First Semester	Credits	Second Semester	Credits
ENV ENG 2601 or CIV ENG 2601	3	BIO SCI 2263	3
HISTORY 1300 or 1310	3	CIV ENG 5640 or ENV ENG 5640	3

MATH 1212	4	ECON 4440	3
PHYSICS 1145 or 1135	4	ECON 4540	3
POL SCI 1200	3	ENV ENG 2602 or CIV ENG 2602	3
	17		15

Junior Year

First Semester	Credits	Second Semester	Credits
BIO SCI 4313	3	BIO SCI 2223	3
GEO ENG 3148	3	ENGLISH 2250	3
GEO ENG 5331	3	GEOLOGY 2611, or 2917, or 4721, or 4711	3
PHILOS 4665 or 3277	3	HISTORY 4470, or 2510, or 3530, or 3510	3
UPPER DIVISION ELECTIVES[1]	3	PHILOS 4350	3
	15		15

Senior Year

First Semester	Credits	Second Semester	Credits
ENV ENG 5642 or CIV ENG 5642	3	ENV SCI 4028	3
GEOLOGY 4310, or GEO ENG 5144, or GEOLOGY 4321	3	UPPER DIVISION ELECTIVES[1]	10
STAT 3425	4		
UPPER DIVISION ELECTIVES[1]	6		
	16		13

Total Credits: 120

1

See Upper Division Elective Course List

Upper Division Elective Course List

BIO SCI 2242	Cave Biology	2
BIO SCI 2252	Vegetation of the Ozarks	2
BIO SCI 2264	Field Ecology	2
BIO SCI 2372	Issues in Public Health	3
BIO SCI 2383	Plant Biology	3
BIO SCI 2389	Plant Biology Laboratory	1
BIO SCI 3363	Ecophysiology	3
BIO SCI 3383	Plant Physiology	3
BIO SCI 4099	Undergraduate Research	1-3
BIO SCI 4316	Introduction to Geomicrobiology	3
BIO SCI 4363	Freshwater Ecology	3

BIO SCI 4369	Freshwater Ecology Laboratory	1
BIO SCI 4383	Toxicology	3
BIO SCI 4423	Introduction to Astrobiology	3
BIO SCI 4563	Global Ecology	3
BIO SCI 4663	Animal Behavior	3
BIO SCI 5423	Advanced Biodiversity	3
BIO SCI 5443	Population and Conservation Genetics	3
BIO SCI 5453	Forest Insect Diversity & Ecology	2
BIO SCI 5523	Ichthyology	3
CHEM 4710	Principles Of Environmental Chemistry	3
CIV ENG 5605	Environmental Systems Modeling	3
CIV ENG 5630	Remediation of Contaminated Groundwater and Soil	3
CIV ENG 5635	Phytoremediation and Natural Treatment Systems: Science and Design	3
CIV ENG 5650	Public Health Engineering	3
CIV ENG 5660	Introduction To Air Pollution	3
CIV ENG 5662	Air Pollution Control Methods	3
CIV ENG 5665	Indoor Air Pollution	3
ECON 3512	Mining Industry Economics	3
ECON 4085	Internship	0-6
ECON 4641	Foundations of Sustainability	3
ECON 4642	Introduction to Global Eco- and Social-preneurship and Innovation	3
ECON 4643	Ethical Problems in a Global Environment	3
ECON 5644	Creativity, Innovation, and Sustainability	3
ECON 5658	Building Sustainability and Environmental, Social and Governance (ESG)	3
ENV ENG 3615	Water And Wastewater Engineering	3
ENV ENG 4010	Senior Seminar: Engineering In A Global Society	1
ENV ENG 4099	Undergraduate Research	0-6
ENV ENG 4609	Research in Environmental Engineering	1

ENV ENG 5605	Environmental Systems Modeling	3
ENV ENG 5630	Remediation of Contaminated Groundwater And Soil	3
ENV ENG 5635	Phytoremediation and Natural Treatment Systems: Science and Design	3
ENV ENG 5650	Public Health Engineering	3
ENV ENG 5660	Introduction To Air Pollution	3
ENV ENG 5662	Air Pollution Control Methods	3
ENV ENG 5665	Indoor Air Pollution	3
ENV SCI 3213	One Health Basics	3
ENV SCI 4010	Seminar	1
ENV SCI 4099	Undergraduate Research	0-6
ENV SCI 5425	Environmental Conservation	3
GEO ENG 2536	Basic Weather	3
GEO ENG 4099	Undergraduate Research	0-6
GEO ENG 4276	Environmental Aspects Of Mining	3
GEO ENG 5085	Internship	0-15
GEO ENG 5146	Applications Of Geographic Information Systems	3
GEO ENG 5233	Risk Assessment In Environmental Studies	3
GEO ENG 5239	Groundwater Remediation	3
GEO ENG 5276	Sustainability in Mining	3
GEO ENG 5320	Groundwater Modeling	3
GEO ENG 5332	Fundamentals of Groundwater Hydrology	3
GEO ENG 5556	Renewable Energy Systems	3
GEOLOGY 2096	Field Geology	3
GEOLOGY 2610	Mineralogy And Crystallography	4
GEOLOGY 2611	Physical Mineralogy And Petrology	3
GEOLOGY 2731	Introduction to Planetary Science	3
GEOLOGY 4085	Internship	3
GEOLOGY 4099	Undergraduate Research	0-6

GEOLOGY 4310	Remote Sensing Technology	3
GEOLOGY 4321	Drone Mapping and Photogrammetry	3
GEOLOGY 4411	Hydrogeology	3
GEOLOGY 4431	Methods Of Karst Hydrogeology	3
GEOLOGY 4630	Systematic Paleontology	3
GEOLOGY 4711	Paleoclimatology and Paleoecology	3
GEOLOGY 4721	Climate Change and Society	3
GEOLOGY 4821	Applications Of Geographic Information Systems	3
GEOLOGY 4841	Geological Field Studies	3
GEOLOGY 5681	Lidar Principles and Application	3
GEOLOGY 5741	Micropaleontology	3
HISTORY 2110	World Regional Geography	3
MIN ENG 5742	Sustainability in Mining	3
PHILOS 3277	Wilderness and Its Critics	3
POL SCI 3300	Principles Of Public Policy	3
POL SCI 4085	Political Science Internship	0-6
POL SCI 4320	The Politics of Innovation	3

Secondary Education Emphasis Area

You may earn a BS degree in environmental science from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with this emphasis area. 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. This program can be completed in four academic years, and student teaching is arranged with public schools anywhere in the state. Students interested in this emphasis area should consult with the advisor for environmental science.

In order to successfully complete the emphasis area, students must attain at least a 2.5 GPA for all environmental science courses and a 3.0 education GPA required by the Missouri Department of Elementary and Secondary Education for teacher certification. Courses must fulfill the Missouri S&T general education requirements applicable to the student's catalog year.

Students must also meet all requirements listed under the teacher education website including passing the state-required assessments.

A degree in the emphasis area requires a minimum of 127-128 credit hours. The required courses are provided below.

Humanities: 15 semester hours

ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
or ENGLISH 3560	Technical Writing	
ENGLISH 2250	American Short Story	3
PHILOS 3277	Wilderness and Its Critics	3
PHILOS 4350	Environmental Ethics and Justice	3
Social Sciences: 18 semester hours		
ECON 1100	Principles Of Microeconomics	3
ECON 4440	Environmental And Natural Resource Economics	3
HISTORY 1310	American History Since 1877	3
HISTORY 2510	History of Technology	3
or HISTORY 3510	Twentieth Century Technology And Society	
or HISTORY 3530	History of Science	
PSYCH 1101	General Psychology	3
PSYCH 3310	Developmental Psychology	3
Mathematics/Statistics/Physical Science: 15-16 semester hours		
MATH 1212	Survey of Calculus	4
or MATH 1214	Calculus I	
PHYSICS 1145	College Physics I	4
or PHYSICS 1135	Engineering Physics I	
PHYSICS 1505 & PHYSICS 1509	Introductory Astronomy and Astronomy Laboratory	4
STAT 3425	Introduction to Biostatistics	3-4
or STAT 3113	Applied Engineering Statistics	
or STAT 3115	Engineering Statistics	
Biological Sciences: 10 semester hours		
BIO SCI 1223	Biodiversity	3
BIO SCI 1229	Biodiversity Lab	1
BIO SCI 2223	General Genetics	3

BIO SCI 2263	Ecology	3
Chemistry: 9 semester hours		
CHEM 1100	Introduction To Laboratory Safety & Hazardous Materials	1
CHEM 1310	General Chemistry I	4
CHEM 1319	General Chemistry Laboratory	1
CHEM 1320	General Chemistry II	3
or GEOLOGY 3410	Introduction To Geochemistry	
Civil, Architectural and Environmental Engineering: 9 semester hours		
ENV ENG 2601	Fundamentals of Environmental Engineering and Science	3
ENV ENG 2602	Biological Fundamentals Of Environmental Engineering	3
ENV ENG 5640	Environmental Law And Regulations	3
or ENV ENG 5642	Sustainability, Population, Energy, Water, and Materials	
Environmental Science: 4 semester hour		
ENV SCI 1110	Terra Incognita: A First-Year Seminar for Environmental Science	1
ENV SCI 1173	Introduction to Environmental Sciences	3
Geological Sciences/Geological and Petroleum Engineering: 9 semester hours		
GEO ENG 2536	Basic Weather	3
or GEOLOGY 4721	Climate Change and Society	
or GEOLOGY 2917	Climate Change and Society	
GEO ENG 3148	Fundamentals Of Geographic Information Systems	3
or GEOLOGY 4310	Remote Sensing Technology	
or GEOLOGY 4321	Drone Mapping and Photogrammetry	
GEOLOGY 1110	Physical and Environmental Geology	3
Education: 38 semester hours		
EDUC 1074	Foundations of Education in a Diverse Society	3
EDUC 1104	Teacher Field Experience I	1
~~EDUC 1164~~	~~Teacher Field Experience II~~	~~2~~
EDUC 3164	Teacher Field Experience II	2

EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3216	Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3298	Teacher Field Experience III	1
EDUC 3340	Assessment of Student Learning	3
EDUC 4298	Student Teaching Seminar	1
EDUC 4299	Student Teaching	12
PSYCH 2300	Educational Psychology	3
or EDUC 2102	Educational Psychology	
PSYCH 4310	Psychology Of The Exceptional Child	3
or EDUC 2310	Education Of The Exceptional Child	

Justification for request

Education department is changing EDUC 1164 to EDUC 3164. Per the justification on the CC form, "Because of the 60 hour pathway legislation, we need to change this course to a 3000 level because it is not part of the first two years of community college, transfer coursework. This is one of a series of changes we are making to our program in anticipation of those requirements. We will be making the individual course changes and then submitting one DCC form to capture all of them."

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents

Department Approval for DC Gen Ed Changes.pdf

Reviewer Comments

Hannah Johnson (hjh9x) (10/16/26 11:15 am): Per email from Robin Verble: They are aware that the prereqs for the ENV ENG 2601 and ENV ENG 2602 courses are not listed in the plan of study and are being handled currently with permission numbers. CARE will be updating the prereqs on these forms to accommodate for the ENV SCI BS soon.

Program Change Request

Date Submitted: 10/14/26 2:24 pm

Viewing: GL&GPH-BS : Geology and Geophysics BS

Last approved: 06/02/26 8:11 am

Last edit: 10/14/26 3:35 pm

Changes proposed by: Kelly Liu (liukh)

Catalog Pages Using this Program

Geology and Geophysics

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. 09/15/26 4:49 pm Stephen Gao (sgao): Approved for RGEOSENG Chair
2. 10/06/26 11:13 am Hannah Johnson (hjh9x): Rollback to Initiator
3. 10/14/26 2:36 pm Stephen Gao (sgao): Approved for RGEOSENG Chair
4. 10/16/26 11:36 am Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 10/23/26 12:48 pm Theresa Swift (thswift): Approved for Engineering

DSCC Chair
6. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. May 6, 2014 by Francisca Oboh-Ikuenobe (ikuenobe)
2. Apr 24, 2015 by wronk
3. Mar 27, 2017 by Kelly Liu (liukh)
4. Jun 18, 2018 by Kelly Liu (liukh)
5. Jun 14, 2019 by Sharon Lauck (laucks)
6. Jul 1, 2020 by Sharon Lauck (laucks)
7. Jun 10, 2021 by Sharon Lauck (laucks)
8. Oct 28, 2021 by Katherine Grote (grotekr)
9. Sep 16, 2024 by Crystal Wilson (wilsoncry)
10. Mar 26, 2025 by Kelly Liu (liukh)
11. Jul 1, 2025 by Kelly Liu (liukh)
12. Dec 24, 2025 by Crystal Wilson (wilsoncry)

Rationale for Inactivation

13. Jun 2, 2026 by Kelly Liu (liukh)

Supporting Documents

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Science

CIM Prospectus

Academic Level	Undergraduate
Program Code	GL&GPH-BS
Department	Earth Sciences and Engineering
Discipline	Geology

Offered by

Title

Geology and Geophysics BS

CIP Code	40.0699 - Geological and Earth Sciences/ Geosciences, Other.

Purpose

Intended Audience

Program-Specific Admission

Program Requirements and Description

Bachelor of Science
Geology and Geophysics

A minimum of 121 credit hours is required for a Bachelor of Science degree in Geology and Geophysics. Students must average at least two grade points per credit hour and must obtain a letter grade of "C" or better in all Geology and Geophysics courses.

Freshman Year

First Semester	Credits	Second Semester	Credits
CHEM 1100	1	Elective (Science & Eng)[2]	3
CHEM 1305	4	General Education Elective[1]	3
CHEM 1319	1	GEOLOGY 1120	3
ENGLISH 1120	3	GEOLOGY 1129	1
General Education Elective[1]	3	MATH 1214 or 1211[3]	4
GEOLOGY 1110 or GEO ENG 1150	3		
	15		14

Sophomore Year

First Semester	Credits	Second Semester	Credits
COMP SCI 1500	3	Elective (Geo & Geop)[4]	3
Elective (Geo & Geop)[4]	3	ENGLISH 1160, or 3560, or SPM S 1185	3
General Education Elective[1]	3	GEOLOGY 2611	3
GEOPHYS 3210	3	GEOLOGY 3410	3
MATH 1215	4	HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3
	16		15

Junior Year

First Semester	Credits	Second Semester	Credits	Summer Semester	Credits
Elective (Geo & Geop)[4]	3	Elective (Geo & Geop)[4]	3	GEOLOGY 4097	3
GEOLOGY 3310	3	General Education Elective[1]	3		
GEOLOGY 3319	1	GEOLOGY 2096	3		
PHYSICS 1135[5]	4	GEOLOGY 3620	3		
STAT 3113, or 3117, or GEO ENG 4115	3	GEOLOGY 3629	1		
	14		13		3

Senior Year			
First Semester	Credits	Second Semester	Credits
Elective (Geo & Geop)[4]	9	Elective (Science & Eng)[2]	9
Elective (Science & Eng)[2]	6	Free Elective[6]	3
GEOLOGY 4010	0.5	GEOLOGY 4010	.5
		GEOPHYS 5096	3
	15.5		15.5

Total Credits: 121

1

General Education Requirement. General education electives must fulfill the Missouri S&T general education requirements applicable to the student's catalog year.

2

All Geology and Geophysics students must complete at least 18 hours of elective course work in science (which may include additional Geology/Geophysics courses), mathematics, and/or engineering, courses required for the basic program. 12 hours of this course work must be numbered 2000 or above.

3

MATH 1211 may be substituted for MATH 1214.

4

All Geology and Geophysics students must complete at least 21 hours of elective course work numbered 2000 or above in Geology/Geophysics, in addition to the required core curriculum.

5

Students may substitute PHYSICS 1111 and PHYSICS 1119 for PHYSICS 1135.

6

Free elective hours may be taken in any combination of credit hours (1, 2, 3, etc.) and can include any course offerings at the University.

Core Curriculum

Taken by all students in Geology & Geophysics.		
GEOLOGY 1110	Physical and Environmental Geology	3
or GEO ENG 1150	Physical and Environmental Geology	
GEOLOGY 1120	Evolution Of The Earth	3
GEOLOGY 1129	Evolution of the Earth Laboratory	1
GEOLOGY 2096	Field Geology	3
GEOLOGY 2611	Physical Mineralogy And Petrology	3
GEOLOGY 3310	Structural Geology	3
GEOLOGY 3319	Structural Geology Lab	1

GEOLOGY 3410	Introduction To Geochemistry	3
GEOLOGY 3620	Stratigraphy And Sedimentation	3
GEOLOGY 3629	Stratigraphy Lab	1
GEOLOGY 4010	Seminar	0.5
GEOLOGY 4097	Advanced Field Geology	3
GEOPHYS 3210	Introduction to Geophysics	3
GEOPHYS 5096	Global Tectonics	3
Total Credits		33.5

Geology and Geophysics Focus Areas

Economic ~~Geochemistry~~~~General~~ Geology

Students should complete at least 5 courses (15 hours minimum, prioritizing 3511 and 4521) from the list. Students may also choose additional courses to be selected from an approved list and with guidance from student's advisor.

~~CER ENG 2110~~	~~Atomic Structure Of Crystalline Ceramics~~	~~3~~
~~CER ENG 3220~~	~~Phase Equilibria~~	~~3~~
GEO ENG 3175	Geomorphology And Terrain Analysis	3
GEOLOGY 3511	Introduction to Mineral Deposits	3
GEOLOGY 3811	Fundamentals Of Geographic Information Systems	3
GEOLOGY 4441	Applied Geochemistry	3
GEOLOGY 4451	Aqueous Geochemistry	3
GEOLOGY 4461	Isotope Geochemistry	3
~~GEOLOGY 4631~~	~~Advanced Igneous and Metamorphic Petrology~~	~~4~~
GEOLOGY 4521	Ore Microscopy	3
GEOLOGY 4831	Computational Geology	3
GEOLOGY 4841	Geological Field Studies	3
~~GEOLOGY 5611~~	~~Granites And Rhyolites~~	~~4~~
~~GEOLOGY 5671~~	~~Clay Mineralogy~~	~~3~~

GEOLOGY 5510	Organic Geochemistry	3
GEOPHYS 5736	Geophysical Field Methods	3

General Geology

Students should complete at least 5 courses (15 hours minimum) from the list. Students may also choose additional courses to be selected from an approved list and with guidance from student's advisor.

GEO ENG 3175	Geomorphology And Terrain Analysis	3
GEOLOGY 3511	Introduction to Mineral Deposits	3
GEOLOGY 3811	Fundamentals Of Geographic Information Systems	3
or GEO ENG 3148	Fundamentals Of Geographic Information Systems	
GEOLOGY 4630	Systematic Paleontology	3
GEOLOGY 4631	Advanced Igneous and Metamorphic Petrology	4
GEOLOGY 4711	Paleoclimatology and Paleoecology	3
GEOLOGY 4841	Geological Field Studies	3
GEOLOGY 5513	Petroleum Geology	3
GEOLOGY 5611	Granites And Rhyolites	4
GEOLOGY 5741	Micropaleontology	3
GEOLOGY 6311	Advanced Structural Geology	3

Geophysics

Students must choose 1 math and 3 geophysics courses from the list. Students should also choose at least one additional course to be selected from an approved list and with guidance from student's advisor.

GEOLOGY 4310	Remote Sensing Technology	3
GEOPHYS 4231	Seismic Interpretation	3
GEOPHYS 5202	Exploration and Development Seismology	3
GEOPHYS 5231	Seismic Data Processing	3
GEOPHYS 5261	Computational Geophysics	3
GEOPHYS 5736	Geophysical Field Methods	3

or GEO ENG 5736	Geophysical Field Methods	
MATH 2222	Calculus III	4
MATH 3108	Linear Algebra I	3
MATH 3304	Elementary Differential Equations	3
MATH 5325	Partial Differential Equations	3

Groundwater and Environmental Geochemistry

Students should complete at least 5 courses (15 hours minimum) from the list. Students may also choose additional courses to be selected from an approved list and with guidance from student's advisor.

BIO SCI 1173	Introduction to Environmental Sciences	3
ENV ENG 2601	Fundamentals of Environmental Engineering and Science	3
ENV ENG 5640	Environmental Law And Regulations	3
GEO ENG 5237	Geological Aspects Of Hazardous Waste Management	3
GEO ENG 5331	Subsurface Hydrology	3
GEO ENG 5381	Intermediate Subsurface Hydrology And Contaminant Transport Mechs	3
GEOLOGY 4431	Methods Of Karst Hydrogeology	3
GEOLOGY 4451	Aqueous Geochemistry	3
GEOLOGY 4711	Paleoclimatology and Paleoecology	3
GEOPHYS 5782	Environmental and Engineering Geophysics	3
or GEO ENG 5782	Environmental and Engineering Geophysics	

Petroleum Geology ~~Geology~~

Students should complete at least 5 courses (15 hours minimum) from the list. Students may also choose additional courses to be selected from an approval list and with guidance from student's advisor.

GEOLOGY 4310	Remote Sensing Technology	3
GEOLOGY 4630	Systematic Paleontology	3
GEOLOGY 5311	Depositional Systems	3
GEOLOGY 5513	Petroleum Geology	3

GEOLOGY 5661	Advanced Stratigraphy and Basin Evolution	3
GEOLOGY 5741	Micropaleontology	3
GEOPHYS 5202	Exploration and Development Seismology	3
PET ENG 3330	Formation Evaluation	3

Accelerated BS/MS Program Option for Geology and Geophysics Majors

Geology and ~~Geology and~~ Geophysics ~~MajorsGeology and Geophysics~~ undergraduates in G&G at Missouri S&T may opt to apply for an accelerated BS/MS G&G program where a student can achieve both the BS and MS degrees in G&G faster than if pursuing the degrees separately. The degrees awarded will be a BS & MS (non-thesis or thesis) in Geology and ~~Geology and~~ Geophysics.

The benefits for undergraduate students admitted to the program are:

Undergraduate and graduate courses may be chosen with greater flexibility,

Up to nine hours of 5000-level or above G&G coursework may apply to both the BS and MS requirements,

The classes taken for shared BS/MS credit may be taken at the lower undergraduate tuition rate,

The GRE is not required for admission,

Other graduate courses can be taken any time after entering the program as a dual enrolled student,

Work on a thesis project may begin before the BS requirements are completed.

To be eligible for the accelerated BS/MS G&G program, a G&G undergraduate must be at or beyond the junior level standing with a minimum of 48 credit hours. They must have successfully completed the Chemistry and Math requirements and have completed 21 credit hours of G&G courses at Missouri S&T with at least a 3.2 GPA in the G&G courses. To be admitted, the student must complete the program application and non-thesis MS students must have the recommendation of a G&G faculty member, while thesis MS students must have the recommendation of a G&G faculty member who agrees to serve as the graduate thesis advisor. All other MS degree requirements remain the same. The program may be combined with existing honors research, emphasis areas, and certificate options.

The Accelerated Program application must be completed within one semester after shared-credit courses are completed. Courses taken for shared credit will be identified on the application form. These courses will also be listed on the student's Graduate Form 1 to be submitted after the student enters the graduate program. The nine hours of shared-credit coursework, to be taken as undergraduate credit, must be approved by the academic advisor, and may not be undergraduate research, special problems, or transfer courses. An additional six credit hours of coursework for graduate credit (beyond the shared BS/MS credits) can be taken while in the undergraduate program by applying for dual undergraduate/graduate enrollment. Taking additional courses for graduate credit as a dual enrolled student will require formal application to the graduate program. Upon application, acceptance to the G&G MS degree from the Accelerated Program is automatic so long as the student remains in good standing (GPA above 3.0 and B's or better in all graduate courses) within the program. To remain in the Accelerated Program, the student must maintain good standing within the undergraduate G&G program

and must maintain continuous enrollment at Missouri S&T. If the student exits the program before completion of the MS degree requirements, or fails to maintain continuous enrollment at Missouri S&T, the shared-credit courses may not apply toward graduate requirements in the event of future readmission.
It is the student's responsibility to check on how dual-enrollment status and graduate coursework affects scholarships and other financial aid. As a graduate student, you **are not** eligible for Federal Pell Grants. You are still eligible for Federal Financial Aid. You may be eligible for fellowships and teaching/research assistantships. It is the International student's responsibility to check with international affairs during completion of an accelerated BS/MS to ensure immigration status will be maintained throughout the program.

Justification for request

To modify the focus area from Geochemistry to Economic Geology to better align with the nation's growing needs in critical minerals and mineral resources. The courses have been realigned to provide students with relevant knowledge and skills in mineral exploration, resource assessment, and sustainable resource development.

Attach Budget

System Approval Letter — MDHE Receipt_S&T BS Geology & Geophysics Delete Options_OCT 2026.pdf

MDHE Approval

Supporting Documents — deleteoptiontrialBSGeologyGeophysics.docx

Reviewer Comments

Hannah Johnson (hjh9x) (10/06/26 10:28 am): Removed footnote 5 from the GEOLOGY 1129 listed in the Core Curriculum per email from Kelly Liu. Added GEO ENG 1150 as an OR class for GEOLOGY 1110 in the core curriculum to match the plan of study grid - per email from Kelly Liu.

Hannah Johnson (hjh9x) (10/06/26 11:13 am): Rollback: Needing supporting documents for the revised emphasis area.

Crystal Wilson (wilsoncry) (10/14/26 3:35 pm): Attached documentation for the deletion of "emphasis areas" because the department wants them to be "focus areas" and not be at the state level. A DC was submitted in 2014 to have the emphasis areas changed to focus areas but the necessary paperwork was not submitted. This is now being corrected.

Program Change Request

Date Submitted: 09/28/26 4:10 pm

Viewing: **HIST-BA : History BA**

Last approved: 08/27/25 12:04 pm

Last edit: 10/19/26 11:03 am

Changes proposed by: Crystal Wilson (wilsoncry)

Catalog Pages Using this Program

History

In Workflow

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

Approval Path

1. 09/29/26 8:53 am Shannon Fogg (sfogg): Approved for RHISTORY Chair
2. 10/19/26 11:03 am Crystal Wilson (wilsoncry): Approved for CCC Secretary
3. 10/22/26 2:39 pm Alejandra Sobrado (asgx4): Approved for Arts & Humanities DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Aug 6, 2014 by Lahne Black (lahne)
2. Jul 21, 2015 by pantaleoa
3. Jun 27, 2016 by Petra Dewitt (dewittp)
4. Mar 27, 2017 by Petra Dewitt (dewittp)
5. Jun 18, 2018 by Shannon Fogg (sfogg)
6. Jan 30, 2020 by Petra Dewitt

Rationale for Inactivation

(dewittp)
7. May 5, 2021 by Petra Dewitt (dewittp)
8. Nov 15, 2021 by Petra Dewitt (dewittp)
9. Oct 31, 2023 by Petra Dewitt (dewittp)
10. Feb 23, 2024 by Shannon Fogg (sfogg)
11. Apr 30, 2024 by Shannon Fogg (sfogg)
12. Jul 5, 2024 by Crystal Wilson (wilsoncry)
13. Dec 20, 2024 by Crystal Wilson (wilsoncry)
14. Jul 1, 2025 by Crystal Wilson (wilsoncry)
15. Aug 27, 2025 by Crystal Wilson (wilsoncry)

Supporting Documents

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Arts
CIM Prospectus	
Academic Level	Undergraduate
Program Code	HIST-BA

Department	History & Political Science
Discipline	History
Offered by	
Title	
History BA	
CIP Code	54.0101 - History, General.

Purpose

Intended Audience

Program-Specific Admission

Program Requirements and Description

Bachelor of Arts

History

In addition to general education requirements for Missouri S&T as stated in the catalog and the requirements for bachelor of arts degree applicable to the student's catalog year. ~~degree.~~

HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
HISTORY 1790	Introduction to History	1
HISTORY 2791	Historical Research Methods	3
HISTORY 4790	Historiography	3

2 American History Electives		6
2 European History Electives		6
2 History Electives		6
3 hours of Electives must come from a non-western, marginalized or minority focused course, such as		
HISTORY 2430	History of the American Pacific	
HISTORY 3241	World War I A Global Perspective	
HISTORY 3600	World History	
HISTORY 3625	Slavery and Abolition in Atlantic World	
HISTORY 3660	Modern East Asia	
HISTORY 3665	History of Japan	
HISTORY 4245	Nazi Germany and the Holocaust	
HISTORY 4246	War and Society in Twentieth-Century Europe	
HISTORY 4760	China's Rise to Superpower (or)	
POL SCI 4760	China's Rise to Superpower	
Total Credits		31

Note: History majors are also required to complete HISTORY 1100 and HISTORY 1200 as part of the general education requirements for the B.A. In addition, 9 hours of the 31 major hours must be taken at the 3000 or 4000 level.

Note: History majors interested in graduate or professional school should take HISTORY 4097 as independent research under the guidance of a faculty member in a short period (one semester).

Note: History majors must complete an experiential learning requirement. They can meet this requirement by taking HISTORY 4085 or HISTORY 4097 or study abroad, among other options, in consultation with their advisor.

Note: Entering students will normally take ENGLISH 1120 either semester of the first year.

Secondary Education Emphasis Area

You may earn a B.A. degree in history from Missouri S&T and certification to teach in the schools of Missouri. 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. This program may be completed in four academic years and student teaching is arranged with public schools anywhere in the state.

Students interested in the certification program should consult with the advisor for history/education majors in the department of history and political science for requirements particular to those interested in this degree. Students should process a change of major form to designate history with an emphasis area of secondary education.

History students must complete 121 credit hours, including requirements for teacher education listed in this catalog. To be eligible for student teaching and certification, students must have a 2.5 content GPA and a 3.0 education GPA. A minimum grade of "C" is required by the department in all history and political science courses counted towards this degree. Students must take the following courses:

Communication Skills: 6 hours		
ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
Humanities: 12 hours with at least one course from the first three areas		
Art or Music or Theater Appreciation		
Philosophy		
Literature		
Foreign Language		
ETYM 4306	Introduction To Etymology	3
Social Sciences: 18 hours		
POL SCI 1200	American Government	3
Political Science Elective Must be 2XXX or above		3
ECON 1100	Principles Of Microeconomics	3
or ECON 1200	Principles Of Macroeconomics	
PSYCH 1101	General Psychology	3
PSYCH 4600	Social Psychology	3
HISTORY 2110	World Regional Geography	3
Natural Sciences: 7 hours = 2 courses and 1 lab		
One course in Physics or Chemistry or Geology and one course in Biology		
One laboratory in any of the above science courses		
Mathematics: 3 hours		
MATH 1120	College Algebra (or higher)	3-5
or MATH 1103	Fundamentals Of Algebra	
or MATH 1140	College Algebra	
Clinical Experience: 16 hours		
EDUC 1104	Teacher Field Experience I	1

~~EDUC 1164~~	~~Teacher Field Experience II~~	~~2~~
EDUC 3164	Teacher Field Experience II	2
EDUC 3298	Teacher Field Experience III	1
EDUC 4299	Student Teaching	12
Professional Requirements: 26 hours		
EDUC 1074	Foundations of Education in a Diverse Society	3
EDUC 2310	Education Of The Exceptional Child	3
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3216	Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3340	Assessment of Student Learning	3
EDUC 4298	Student Teaching Seminar	1
PSYCH 2300/ EDUC 2102	Educational Psychology	3
PSYCH 3310	Developmental Psychology	3
History Requirements: 34 hours		
HISTORY 1100	Early Western Civilization	3
HISTORY 1200	Modern Western Civilization	3
HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
HISTORY 1790	Introduction to History	1
HISTORY 2791	Historical Research Methods	3
HISTORY 4790	Historiography	3
American History Electives		6
European History Electives		6
History Electives		3

National Security Emphasis Area (18 hours)

It is not required that students obtain an emphasis area in their major.

The following identifies courses from which a student may opt to develop a National Security Emphasis Area.
In addition to General Education Requirements for the BA and the core History Requirements (19 hours), students must select in consultation with their advisor at least 18 hours from the below with a minimum of 9 hours in history courses. POL SCI 4500 is strongly recommended.
Students may, but do not have to, focus their selection on American Security or Global Security.
At least 2 courses (6 hours) (or for a focus on American Security up to 12 hours) with grades of C or better from the following

HISTORY 3325	Revolutionary America, 1754-1789	3
HISTORY 3345	Civil War And Reconstruction	3
HISTORY 3440	Grunts: 20th Century Americans In Combat	3
HISTORY 3441	The United States In World War II	3
HISTORY 3442	The United States in Vietnam	3
HISTORY 3443	The American Military Experience	3
HISTORY 3760	The American Presidency (or)	3
POL SCI 3760	The American Presidency	
HISTORY 3761	U.S. Diplomatic History to World War II (or)	3
POL SCI 3761	U.S. Diplomatic History to World War II	
HISTORY 3762	American Foreign Policy Since 1945 (or)	3
POL SCI 3762	American Foreign Policy Since 1945	
POL SCI 3300	Principles Of Public Policy	3
POL SCI 3310	Public Policy Analysis	3

And at least 2 courses (6 hours) (or for a focus on Global Security up to 12 hours) with grades of C or better from the following

HISTORY 2224	Making Of Modern Russia	3
HISTORY 3241	World War I A Global Perspective	3
HISTORY 3235	Foundations Of Contemporary Europe 1815-1914	3
HISTORY 3240	Contemporary Europe	3
HISTORY 3600	World History	3
HISTORY 4245	Nazi Germany and the Holocaust	3
HISTORY 4246	War and Society in Twentieth-Century Europe	3
HISTORY 4760	China's Rise to Superpower	3

or POL SCI 4760	China's Rise to Superpower	
~~POL SCI 4760~~	~~China's Rise to Superpower~~	
POL SCI 4500	Geopolitics and International Security	3
RUSSIAN 4360	Russian Civilization	3
Students may also select from the following enough electives to reach 18 credit hours		
BIO SCI 2372	Issues in Public Health	3
BUS 4675	International Business	3
GEO ENG 3148	Fundamentals Of Geographic Information Systems (or)	3
GEOLOGY 3811	Fundamentals Of Geographic Information Systems	
HISTORY 3530	History of Science	3
IS&T 1314	Exposure to Cybersecurity Concepts	3
IS&T 3333	Data Networks and Information Security	3
MIL AIR 4110	National Security, Leadership Responsibilities & Commissioning Preparation I	2.5
MIL AIR 4120	National Security, Leadership Responsibilities & Commissioning Preparation II	2.5
MIL ARMY 3500	Leadership in Changing Environments	3
MIL ARMY 4250	Developing Adaptive Leaders	3
MIL ARMY 4500	Leadership in a Complex World	3
PHYSICS 1605	Environmental Physics I	3
PSYCH 4610	Psychology of Leadership in Organizations	3
PSYCH 4992	Cross-Cultural Psychology	3
Additional courses from the above may be used to reach 120 credit hours.		

Justification for request

Education department is changing EDUC 1164 to EDUC 3164. Per the justification on the CC form, "Because of the 60 hour pathway legislation, we need to change this course to a 3000 level because it is not part of the first two years of community college, transfer coursework. This is one of a series of changes we are making to our program in anticipation of those requirements. We will be making the individual course changes and then submitting one DCC form to capture all of them."

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents

MDHE Approval Letter_S&T_ FEB 2024.pdf

PC Form-History BA-Emphasis Addition.pdf

Reviewer Comments

Crystal Wilson (wilsoncry) (10/19/26 11:03 am): Added statement about gen ed and BA requirements being applicable to student's catalog year. Also, placed courses in order.

Key: 157

Program Change Request

Date Submitted: 10/06/26 3:42 pm

Viewing: IST-BS : Information Science and Tch BS

Last approved: 04/08/26 4:11 pm

Last edit: 10/19/26 11:28 am

Changes proposed by: Cecil Eng Huang Chua (cecq8z)

Catalog Pages Using this Program	Information Science and Technology
Final Catalog	FS2027-SP2028
Rationale for Supporting	
Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Science
CIM Prospectus	
Academic Level	Undergraduate
Program Code	IST-BS
Department	Jaggi School of Business
Discipline	Info Science & Technology
Offered by	
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. 10/06/26 3:50 pm Cassie Elrod (cassa): Approved for RBUS&IT Chair
2. 10/19/26 11:32 am Crystal Wilson (wilsoncry): Approved for CCC Secretary
3. 10/19/26 11:44 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Apr 28, 2014 by barryf
2. Jan 30, 2015 by barryf
3. Jul 21, 2015 by pantaleoa
4. Jul 21, 2015 by pantaleoa
5. Jul 28, 2015 by kleb6b
6. Mar 7, 2016 by barryf
7. Apr 21, 2017 by Crystal Wilson (wilsoncry)
8. Jun 18, 2018 by barryf
9. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)
10. Jun 14, 2024 by Cassie Elrod (cassa)
11. Jul 1, 2025 by Cecil Eng Huang Chua (cchua)
12. Dec 3, 2025 by Crystal Wilson (wilsoncry)
13. Apr 8, 2026 by Crystal Wilson (wilsoncry)

Information Science and Tch BS

CIP Code

Purpose

Intended Audience

Program-Specific
Admission

Program Requirements and Description

Bachelor of Science
Information Science and Technology

In Information Science and Technology, the Bachelor of Science degree consists of 120 credit hours. All undergraduate students in Information Science and Technology are required to complete a General Education Requirements Core, including courses in Humanities, Social Sciences, Mathematics, Science, and Communication Skills.

A common core of courses helps provide students with skills to succeed in a fast-changing and globalized environment. Information Science and Technology (IS&T) Core courses and IS&T Electives provide students with comprehensive knowledge of information technology utilization in businesses. These courses include business analytics & data science, database management, systems analysis, introduction to data science and management, networks and communications, and cybersecurity. The electives for this degree consist of advanced coursework in the areas introduced by the required courses.

A minimum grade of "C" is required in the courses designated accordingly.

Students have 11 credit hours for free electives.

Freshman Year

First Semester	Credits	Second Semester	Credits
BUS 1810	1	BUS 1110	3
ENGLISH 1120[3]	3	BUS 1210	3
IS&T 1551	3	IS&T 1552	3
IS&T 1750	3	MATH 1210[3]	5
Science Elective[1,3]	3	PSYCH 1101[3]	3
Science Lab[3]	1		
	14		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
ECON 1200[3]	3	ECON 1100[3]	3
ERP 2110	3	ECON 1300	3

FINANCE 2150	3	ENGLISH 2560 (or TECHCOM 2560)[3]	3
Fine Art, or Humanities Elective[2,3]	3	~~STAT 1115~~	~~3~~
SP&M S 1185[3]	3	IS&T 3420	3
		Science Elective[1,3]	3
	15		15
Junior Year			
First Semester	Credits	Second Semester	Credits
Free Elective	3	IS&T 3343	3
IS&T 3333	3	IS&T 4444	3
IS&T 3423	3	IS&T Elective	3
IS&T 4654	3	MKT 3110	3
IS&T Elective	3	POL SCI 1200[3]	3
	15		15
Senior Year			
First Semester	Credits	Second Semester	Credits
Free Elective	5	BUS 5980	3
IS&T 5520	3	Free Electives	3
IS&T 5725	3	IS&T 5420	3
IS&T Electives	6	IS&T Elective	3
	17		12

Total Credits: 120

A grade of "C" or better is required in the following courses for graduation; BUS 1110, BUS 1210, BUS 1810, BUS 5980, ECON 1100, ECON 1200, ERP 2110, FINANCE 2150, MKT 3110, IS&T 1551, IS&T 1552, IS&T 1750, IS&T 3333, IS&T 3343, IS&T 3420, IS&T 3423, IS&T 4444, IS&T 4654, IS&T 5420, IS&T 5520,IS&T 5725 and all IS&T Electives (can include BUS 5151, BUS 5730, BUS 5910, BUS 5920, ~~BUS 5910, COMP SCI 4700,~~ COMP SCI 5601, or any IS&T or ERP designated course at the 3000-level or above).

1

General education elective courses in two of the following areas: biology, chemistry, geology, or physics must fulfill the Missouri S&T general education requirements applicable to the students catalog year.

2

General education elective courses in two of the following areas: art, history, music, or theater must fulfill the Missouri S&T general education requirements applicable to the students catalog year.

3

General education discipline required course. These fulfill the Missouri S&T general education requirements applicable to the student's catalog year.

Justification for request

STAT 3111 currently taught by ECON faculty. Adding technical business electives that have obtained/are in process of obtaining permanent course numbers. Delete COMP SCI elective no longer offered.

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents

Reviewer Comments

Hannah Johnson (hjh9x) (10/19/26 11:28 am): Alphabetized the plan of study grid.

Program Change Request

Date Submitted: 09/29/26 10:26 am

Viewing: MAT S E-MI : Materials Science and Engineering Minor

Last approved: 06/15/26 4:27 pm

Last edit: 10/15/26 10:30 am

Changes proposed by: David Lipke (lipked)

Catalog Pages Using this Program

Materials Science and Engineering

In Workflow

1. RMATSENG 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

Final Catalog	FS2027-SP2028

Approval Path

1. 09/29/26 11:11 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/19/26 9:57 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 12:48 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Jul 1, 2025 by David Lipke (lipke)
2. Jul 7, 2025 by Crystal Wilson (wilsoncry)
3. Jun 15, 2026 by Crystal Wilson (wilsoncry)

Rationale for Inactivation	
Supporting Documents	

Effective Catalog Edition	FS2027-SP2028

Start Term	Fall 2027
Program Type	Minor

CIM Prospectus

Academic Level	Undergraduate
Program Code	MAT S E-MI
Department	Materials Science & Engineering
Discipline	Materials Science & Engineering

Offered by

Title

Materials Science and Engineering Minor

CIP Code	14.1801 - Materials Engineering.

Purpose

Intended Audience

Program-Specific Admission

Program Requirements and Description

Materials Science and Engineering Minor

Any Missouri S&T student pursuing a bachelor of science degree may receive a minor in Materials Science and Engineering by completing a minimum of 15 credit hours of approved courses as listed below. Students must satisfy the prerequisite requirements for each course. The department granting the bachelor of science degree shall determine whether or not courses taken for the minor may also be used to fulfill the requirements of the

B.S. degree. At least 9 credit hours must be taken outside the student's major degree program (courses co-listed with the student's major degree program may not count toward these credit hours).[1] In addition, at least 6 credit hours must be taken at 2000-level or higher in CER ENG, MET ENG, SEMI ENG and/or MS&E coursework, and at least 6 credit hours of coursework counted toward the minor must be at 3000-level or higher. Special topics, independent study and undergraduate research credit may be included in the minor program but not exceed 6 credit hours. A maximum of 6 credit hours of transfer credit may be used to satisfy the course requirements for a minor.

Required: Choose one of the following course		
CER ENG 2110	Atomic Structure Of Crystalline Ceramics	3
MET ENG 2110	Metallurgy For Engineers	3
SEMI ENG 2100	Fundamentals of Semiconductor Materials	3

~~**Required:MET ENG 2110 Metallurgy for Engineers or CER ENG 2210 Ceramics in the Modern WorldSix (6) or more credit hours at 2000-level or higher in CER ENG, MET ENG, and/or MS&E**~~ **Electives:**

3000-level or higher courses in MET ENG, SEMI ENG, CER ENG, or MS&E [2,3]		
AERO ENG 5229/ ELEC ENG 5270/ MECH ENG 5229/ CIV ENG 5118	Smart Materials and Sensors	3
AERO ENG 5236/ MECH ENG 5236	Fracture Mechanics	3
AERO ENG 5238/ MECH ENG 5238	Fatigue Analysis	3
AERO ENG 5282/ MECH ENG 5282	Introduction to Composite Materials & Structures	3
BME 4100	Biomedical Polymers and Metals	3
BME 5200/ CHEM ENG 5270	Materials as Hard Tissue Devices	3
CHEM 2510	Analytical Chemistry I	4
CHEM 3310	Inorganic Chemistry I	3
CHEM 3320	Inorganic Chemistry II	3
CHEM 3329	Inorganic Chemistry Laboratory	1
CHEM 3510	Analytical Chemistry II	4

CHEM 4810/ MS&E 4810	Chemistry And Inherent Properties Of Polymers	3
CHEM 5001	Special Topics (Computational Modeling in Chemistry)	3
MECH ENG 2653	Introduction To Manufacturing Processes [4]	3
or MET ENG 3420	Principles Of Materials Processing	
MECH ENG 3653	Manufacturing	3
MET ENG 5170/ NUC ENG 4241	Nuclear Materials I	3
MET ENG 5310/ CHEM ENG 5315	Corrosion and Its Prevention	3
MS&E 5310/ BIO SCI 5210/ CHEM ENG 5200	Biomaterials	3
PHYSICS 4323	Elementary Solid State Physics	3
PHYSICS 5353	Quantum Materials	3
PHYSICS 5409	Computational Physics Laboratory	3

1

CER ENG, MET ENG, and SEMI ENG majors may not count any required courses in CER ENG, MET ENG, SEMI ENG and/or MS&E toward the minimum 9 credit hour out of program requirement for the minor.

2

The following courses may not be used for the minor: CER ENG 4096 CER ENG 4097, CER ENG 5002, MET ENG 4002 MET ENG 4096, MET ENG 4097, SEMI ENG 4002, SEMI ENG 4096, SEMI ENG 4097.

3

CER ENG 4099, MET ENG 4099, SEMI ENG 4099 require prior approval from the minor program committee.

4

Students may not count both MECH ENG 2653 and MET ENG 3420 toward the minor.

Justification for request

MSE minor was created prior to approval of the Semi Eng program, so references to Semi Eng were added in addition to Cer Eng, Met Eng, and MSE courses. De-activated courses removed from footnote 2. Expanded list of materials-related Electives.

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents

Reviewer Comments

Hannah Johnson (hjh9x) (10/14/26 11:32 am): Alphabetized the course listing. Hyperlinked MET ENG 3002, SEMI ENG 4002, SEMI ENG 4096 and SEMI ENG 4097 in footnote 2, hyperlinked SEMI ENG 4099 in footnote 3.

Hannah Johnson (hjh9x) (10/14/26 2:27 pm): Created a course list for the required course from the previous sentence format. They are adding CER ENG 2110 and SEMI ENG 2100 as options for the required course section. Included wording about hours taked at the 2000 level in the department, and the 6 hours taken at 3000 level or higher, and the transfer credit and the research/study/or special topics credit in the description - per email from David Lipke with wording. Added the cross reference of CIV ENG 5118 to AERO ENG 5229, and the cross reference of CHEM ENG 5270 to BME 5200 for consistency. Added SEMI ENG to the 3000-level or higher courses in the electives listing. Added SEMI ENG to footnote one. Removed MET ENG 3002 from footnote 2 due to a deletion of the course. Approved by David Lipke.

Hannah Johnson (hjh9x) (10/14/26 3:13 pm): Removed PHYSICS 5001 Special Topics (Quantum Materials) and replaced it with PHYSICS 5353 in the course listing due to their request of a permanent course number.

Hannah Johnson (hjh9x) (10/15/26 10:30 am): Corrected the title of the CHEM 5001 course from "Practical Computational Modeling for Chemistry and Materials Science" to "Computational Modeling in Chemistry" per email from David Lipke.

Program Change Request

Date Submitted: 09/29/26 10:43 am

Viewing: MT ENG-BS : Metallurgical Engineering BS

Last approved: 06/02/26 8:14 am

Last edit: 10/07/26 1:14 pm

Changes proposed by: David Lipke (lipked)

In Workflow

1. RMATSENG 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

Catalog Pages Using this Program

Metallurgical Engineering

Final Catalog	FS2027-SP2028
Rationale for	
Supporting	

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Science
CIM Prospectus	
Academic Level	Undergraduate
Program Code	MT ENG-BS
Department	Materials Science & Engineering
Discipline	Metallurgical Engineering
Offered by	
Title	

Approval Path

1. 09/29/26 11:11 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/19/26 9:47 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 12:48 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Oct 8, 2013 by Lahne Black (lahne)
2. Apr 28, 2014 by Lahne Black (lahne)
3. Aug 14, 2014 by Lahne Black (lahne)
4. Aug 20, 2014 by pantaleoa
5. Aug 20, 2014 by pantaleoa
6. Aug 20, 2014 by pantaleoa
7. Jul 21, 2015 by pantaleoa
8. Mar 7, 2016 by F.

Scott Miller (smiller)
9. Mar 27, 2017 by F. Scott Miller (smiller)
10. Jun 28, 2017 by F. Scott Miller (smiller)
11. Mar 3, 2020 by ershenb
12. Sep 15, 2020 by Crystal Wilson (wilsoncry)
13. Apr 6, 2022 by F. Scott Miller (smiller)
14. Jun 14, 2024 by David Lipke (lipke)
15. Dec 20, 2024 by jm558v
16. Jul 1, 2025 by David Lipke (lipke)
17. Dec 24, 2025 by Crystal Wilson (wilsoncry)
18. Jun 2, 2026 by David Lipke (lipke)

Metallurgical Engineering BS

CIP Code	14.2001 - Metallurgical Engineering.

Purpose

Intended Audience

Program-Specific Admission

Program Requirements and Description

Bachelor of Science
Metallurgical Engineering

For the Bachelor of Science degree in Metallurgical Engineering a minimum of 128 credit hours is required. A cumulative grade point average of at least 2.0 is required for all courses applied toward the degree, as well as for all required courses in the major field of study.

Freshman Year

First Semester	Credits	Second Semester	Credits
CHEM 1310[1]	4	CHEM 1320[1]	3
CHEM 1319	1	MATH 1215[1]	4
ENGLISH 1120	3	MECH ENG 1720	3
FR ENG 1100	1	MET ENG 2110[1]	3
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	PHYSICS 1135[1]	4
MATH 1214 or 1211[1]	4		
	16		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
CIV ENG 2200[1]	3	CIV ENG 2210[1]	3
MATH 2222	4	MATH 3304	3
MET ENG 2125[1]	2	MET ENG 3420 or MECH ENG 2653[1]	3
MET ENG 2200[1]	3	MET ENG 3425	1
MET ENG 3130[1]	3	PHYSICS 2135	4
~~MET ENG 3230[1]~~	~~3~~	Programming Elective[2]	3
	15		17

Junior Year

First Semester	Credits	Second Semester	Credits
ENGLISH 1160, or 3560, or SP&M S 1185[7]	3	~~CER ENG 3410~~	~~3~~
General Education Elective[3]	3	General Education Elective[3]	3
MET ENG 3120	3	General Education Elective[3]	3
MET ENG 3125[1]	2	MET ENG 3220	3
Out of Program Technical Elective[4]	3	MET ENG 3225	1
STAT 3113 or 3117	3	MET ENG 3320	3
		MET ENG 3415	3
	17		16

Senior Year

First Semester	Credits	Second Semester	Credits
MET ENG 4096[1]	3	General Education Elective[3]	3
MET ENG 4350	3	MET ENG 4097	3
MET ENG 4420	3	MET ENG 4637	3
Met Technical Elective[6]	3	Met Technical Elective[6]	3
Steel Elective[5]	3	Out of Program Technical Elective[4]	3
	15		15

Total Credits: 128

1

A grade of "C" or better is required in the following courses to satisfy prerequisite requirements for subsequent coursework and to meet graduation criteria: CHEM 1310, CHEM 1320, CIV ENG 2200, CIV ENG 2210, MATH 1214 or MATH 1211, MATH 1215, MET ENG 2110, MET ENG 2125, MET ENG 2200, MET ENG 3125, MET ENG 3130, MET ENG 3420 or MECH ENG 2653, MET ENG 4096, PHYSICS 1135.

2

Both COMP SCI 1972 and COMP SCI 1982, or both COMP SCI 1973 and COMP SCI 1983.

3

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

4

Out of Program Technical Electives must be selected from upper-level (i.e., 2000-level with pre-requisite or 3000-level and above) courses with advisor approval in any of the following disciplines: MATH, STAT, PHYS, CHEM, BIO SCI, GEOLOGY, COMP SCI, IS&T, ENG MGT, or any engineering program excluding courses listed or co-listed with MET ENG. Courses designated BUS, ECON, EDUC, ERP, MIL SCI, or any H/SS program do not satisfy Out of Program Technical Electives requirements.

5

MET ENG 4320 or MET ENG 4450.

6

Any other 3000-level or higher MET ENG course.

7

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.

8

~~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.~~

Justification for request

Revisions reflect CC forms for renumbering of required courses Thermodynamics of Materials and Characterization of Materials.

Out of Department Technical Elective eliminated, replaced with expanded definition of Out of

Program Technical Elective (footnote updated).

Attach Budget

System Approval
Letter

MDHE Approval

Supporting
Documents

Reviewer
Comments

Hannah Johnson (hjh9x) (10/06/26 8:33 am): Footnote 1: I added MATH 1211 as an or class for MATH 1214 as listed in the plan of study. I removed the comma following the MET ENG 3420 because it is an or class with the MECH ENG 2653. Footnote 5: I removed the titles of the courses and placed them in alphabetical/numerical. order.

Hannah Johnson (hjh9x) (10/06/26 9:43 am): MET ENG 2200 and MET ENG 3415 have been updated to reflect the updated course number and will appear in a red box in the plan of study grid. Footnote 1 was updated from MET ENG 3230 to MET ENG 2200 to reflect this update as well and will not be hyperlinked until after approved.

Hannah Johnson (hjh9x) (10/07/26 1:14 pm): Prereq for MECH ENG 2653 is not listed in the plan of study and is optional (mostly for transfer students that have taken this and its prereqs). This is good to remain on the plan of study as is.

Program Change Request

Date Submitted: 08/06/26 9:45 am

Viewing: PHYSIC-BS : Physics BS

Last approved: 07/29/25 12:25 pm

Last edit: 10/19/26 10:28 am

Changes proposed by: Marco Cavaglia (cavagliam)

Catalog Pages Using this Program

Physics

Final Catalog	FS2027-SP2028
Rationale for Inactivation	
Supporting Documents	

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Science
CIM Prospectus	
Academic Level	Undergraduate
Program Code	PHYSIC-BS
Department	Physics
Discipline	Physics
Offered by	
Title	

In Workflow

1. **RPHYSICS 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. 08/06/26 9:04 am Hannah Johnson (hjh9x): Rollback to Initiator
2. 08/13/26 10:36 am Marco Cavaglia (cavagliam): Approved for RPHYSICS Chair
3. 10/19/26 10:31 am Crystal Wilson (wilsoncry): Approved for CCC Secretary
4. 10/23/26 11:43 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
5. 10/26/26 8:28 am Hannah Johnson

(hjh9x): Approved for Pending CCC Agenda post

History

1. May 6, 2014 by waddill
2. Jul 21, 2015 by pantaleoa
3. Jun 27, 2016 by waddill
4. Jun 18, 2018 by crabtree
5. Jun 26, 2018 by Crystal Wilson (wilsoncry)
6. Jun 14, 2019 by Thomas Vojta (vojtat)
7. Jan 30, 2020 by Thomas Vojta (vojtat)
8. Jun 10, 2021 by Thomas Vojta (vojtat)
9. Oct 28, 2021 by Thomas Vojta (vojtat)
10. Apr 6, 2022 by Thomas Vojta (vojtat)
11. Jul 8, 2024 by Crystal Wilson (wilsoncry)
12. Dec 20, 2024 by jm558v
13. Jul 1, 2025 by Crystal Wilson (wilsoncry)
14. Jul 29, 2025 by

Crystal Wilson
(wilsoncry)

Physics BS

CIP Code 40.0801 - Physics, General.

Purpose

Intended Audience

Program-Specific Admission

Program Requirements and Description

Bachelor of Science

Physics

A minimum of 120 credit hours is required for a bachelor of science degree in physics and an average of at least two grade points per credit hour must be obtained. These requirements for the B.S. degree are in addition to credit received for algebra, trigonometry, and basic ROTC.

The physics curriculum requires students must complete the University General Education Requirements as listed in the undergraduate catalog applicable to the student's catalog year. ~~The physics curriculum requires twelve semester hours in humanities, exclusive of foreign language, and must include ENGLISH 1160 orENGLISH 3560.A minimum of nine semester hours is required in social sciences, including either HISTORY 1300, HISTORY 1310, HISTORY 1200, orPOL SCI 1200.~~ Specific requirements for the bachelor's ~~bachelor~~ degree are outlined in the sample program listed below. ~~below~~

Freshman Year

First Semester	Credits	Second Semester	Credits
CHEM 1100	1	CHEM 1320	3

CHEM 1310	4	HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3
CHEM 1319	1	MATH 1215	4
ENGLISH 1120	3	PHYSICS 1135	4
MATH 1214 or 1211	4		
PHYSICS 1101	1		
	14		14
Sophomore Year			
First Semester	Credits	Second Semester	Credits
COMP SCI 1500 or 1972 ***and*** 1982	3	Elective[1]	3
Elective[1]	3	MATH 3304	3
ENGLISH 1160	3	PHYSICS 2129	3
MATH 2222	4	PHYSICS 2305	3
PHYSICS 2135	4	PHYSICS 2401	3
	17		15
Junior Year			
First Semester	Credits	Second Semester	Credits
Elective[1]	3	Electives[1]	6
Math/Stat Elective[2]	3	Math/Stat Elective[2]	3
PHYSICS 3119	3	PHYSICS 3211	3
PHYSICS 3201	3	PHYSICS 3129	3
Physics Area Focus Course[4]	3		
	15		15
Senior Year			
First Semester	Credits	Second Semester	Credits
Electives[1]	6	Electives[1]	9
PHYSICS 4211	3	PHYSICS 4311	3
PHYSICS 4301	3	Physics Elective[3]	3
Physics Area Focus Course[4]	3		
	15		15

Total Credits: 120

Note: The minimum credit hours required for a bachelor of science in physics is 120 hours. No more than two of the required physics and mathematics courses with a grade of "D" may be used to meet graduation requirements. Upon petition to and approval by the physics faculty, three semester hours of advanced ROTC (military science or aerospace credit studies) credit can be counted as elective credit to meet requirements for graduation.

1

30 hours of electives are required in addition to the math/stat electives, physics electives, and physics area focus courses. 12 of these hours must fulfill the Missouri S&T general education requirements applicable to the student's catalog year. 15 hours of free electives may be used to develop an emphasis area. At least 15 hours of elective credit shall be in courses at the 3000 level or above.

[2] Six hours of mathematics or statistics beyond MATH 3304 are required. MATH 3108, MATH 5325, or MATH 5351 are recommended.

[3] In addition to the specific 3000 and 4000 level physics courses listed (PHYSICS 3119, PHYSICS 3129, PHYSICS 3201, PHYSICS 3211, PHYSICS 4211, PHYSICS 4301, PHYSICS 4311), and in addition to the two physics area focus courses, one other physics 3000 level or higher course is required.

[4] Two physics area focus courses are required. Students can pick from PHYSICS 4323, PHYSICS 4333, PHYSICS 4343, and PHYSICS 4553.

Emphasis in Secondary Education

Students may develop an emphasis area in secondary education that will allow them to teach physics in grades 9-12 in Missouri. Please contact the Department of Teacher Education for a complete list of requirements.
In addition to maintaining a 2.5 content GPA and 3.0 education GPA, students must pass the appropriate content assessment to be eligible for student teaching. Missouri S&T allows students to choose their student teaching placement, if the district agrees and a qualified cooperating teacher is available. This program is approved by the Missouri Department of Elementary and Secondary Education. License reciprocity determinations outside of Missouri can be found at https://teaching.missouri.edu/student/state-authorization/mst/licensure.
a. Professional requirements courses:

EDUC 1074	Foundations of Education in a Diverse Society	3
~~PSYCH 2300~~	~~Educational Psychology~~	~~3~~
~~or EDUC 2102~~	~~Educational Psychology~~	
EDUC 2102	Educational Psychology	3
or PSYCH 2300	Educational Psychology	
EDUC 2310	Education Of The Exceptional Child	3
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3216	Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3340	Assessment of Student Learning	3
EDUC 4298	Student Teaching Seminar	1
PSYCH 3310	Developmental Psychology	3

Fifteen of these credit hours may be used to substitute for six hours of mathematics electives, six hours of physics electives, and three hours of computer science courses.

b. Clinical experience courses:

EDUC 1104	Teacher Field Experience I	1
~~EDUC 1164~~	~~Teacher Field Experience II~~	~~2~~
EDUC 3164	Teacher Field Experience II	2
EDUC 3298	Teacher Field Experience III	1
EDUC 4299	Student Teaching	12

c. Take these additional courses:

A 3 hour Art/Music/Theater elective		3
BIO SCI 1113	General Biology	3
HISTORY 3530	History of Science	3
PHYSICS 1605	Environmental Physics I	3
POL SCI 1200	American Government	3
PSYCH 1101	General Psychology	3
SP&M S 1185	Principles Of Speech	3

d. Complete the requirements for teacher certification listed in this catalog.

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

Justification for request

Due to faculty changes, the Math department does not anticipate offering MATH 5222 in the future. The course will be inactivated effective Fall 2027.

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents ~~Physics Supporting Document.pdf~~

Reviewer Comments

Hannah Johnson (hjh9x) (08/06/26 9:04 am): Rollback: You should be able to edit the footnote now.

Hannah Johnson (hjh9x) (08/18/26 1:50 pm): Alphabetized and placed in numerical order the

plan of study, footnote 4, and both sections a and c of the emphasis area.

Hannah Johnson (hjh9x) (08/27/26 9:06 am): Reworded "The physics curriculum requires twelve semester hours in humanities, exclusive of foreign language, and must include ENGLISH 1160 or ENGLISH 3560. A minimum of nine semester hours is required in social sciences, including either HISTORY 1300, HISTORY 1310, HISTORY 1200, or POL SCI 1200. Specific requirements for the bachelor degree are outlined in the sample program listed below" with guidance from Marco Cavaglia to better reflect the gen ed requirements. Removed footnotes in footnote 1 and footnote 3 for formatting.

Hannah Johnson (hjh9x) (08/28/26 11:45 am): Changed the electives in Junior year, first semester to elective.

Hannah Johnson (hjh9x) (09/01/26 9:42 am): Alphabetized senior year, semester one, and corrected spacing error in footnote 3.

Hannah Johnson (hjh9x) (10/13/26 10:05 am): Updated language in footnote one to cover Gen Ed requirements within the electives per email from Marco Cavaglia.

Crystal Wilson (wilsoncry) (10/19/26 10:28 am): Added applicable to the student's catalog year for gen ed statement.

Program Change Request

New Program Proposal

Date Submitted: 09/09/26 11:13 am

Viewing: PROPOSED : Environmental Policy CT

Last edit: 10/20/26 11:08 am

Changes proposed by: Shannon Fogg (sfogg)

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Certificate
CIM Prospectus	
Academic Level	Graduate
Program Code	PROPOSED
Department	History & Political Science
Discipline	Political Science
Offered by	
Title	

In Workflow

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

Approval Path

1. 05/20/26 10:47 am Shannon Fogg (sfogg): Rollback to Initiator
2. 05/20/26 10:50 am Shannon Fogg (sfogg): Approved for RHISTORY Chair
3. 05/21/26 11:51 am Hannah Johnson (hjh9x): Rollback to Initiator
4. 05/21/26 12:33 pm Shannon Fogg (sfogg): Approved for RHISTORY Chair
5. 06/09/26 2:37 pm Hannah Johnson (hjh9x): Approved for CCC Secretary

6. 07/20/26 12:22 pm Alejandra Sobrado (asgx4): Approved for Arts & Humanities DSCC Chair
7. 07/27/26 9:04 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post
8. 08/12/26 3:25 pm Hannah Johnson (hjh9x): Rollback to Initiator
9. 09/09/26 11:17 am Shannon Fogg (sfogg): Approved for RHISTORY Chair
10. 10/14/26 2:08 pm Hannah Johnson (hjh9x): Approved for CCC Secretary
11. 10/22/26 2:39 pm Alejandra Sobrado (asgx4): Approved for Arts & Humanities DSCC Chair
12. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

Environmental Policy CT

CIP Code	03.0209 - Energy and Environmental Policy.

Purpose

The purpose of the Graduate Certificate in Environmental Policy is to prepare students to participate effectively in environmental policymaking as professionals in government, industry,

civil society, and academia. Navigating the complex intersection of environmental science and public policy requires students to develop analytical and leadership skills while acquiring domain-specific knowledge and expertise. This program equips students with both, preparing graduates to evaluate environmental challenges, develop and implement effective policy responses, and promote supporting and compliant practices across diverse organizations and settings. Upon completing the certificate, students are empowered to help drive positive environmental change and support sustainable outcomes at local, national, and global scales.

For students, including graduate students across multiple Master's and PhD programs, recent B.Sc. Environmental Science graduates, and working professionals, the certificate offers a focused pathway for advanced specialization. Adding interdisciplinary dimension and structure to existing offerings, the program helps learners become more competitive candidates for diverse roles in government, corporate sustainability, nonprofit organizations, and consulting, and for further graduate study.

The certificate also aims to serve as a curricular offering aligned with major research initiatives on campus, including the Bio-X initiative, the Critical Minerals and Materials for Advanced Energy Tech Hub, and other interdisciplinary efforts. By training the next generation of environmental specialists in public policy, this certificate promises to help extend the impact of scientific and engineering research into the arenas where regulatory and governance decisions are made.

Intended Audience

Distance (online) Students

Main Campus Students

Program-Specific

Admission

The Graduate Certificate in Environmental Policy is open to all persons who hold 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 Policy 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 Policy Graduate Certificate Program will be allowed to take ''bridge'' courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

Program Requirements and Description

Environmental Policy

The Graduate Certificate in Environmental Policy prepares learners to participate effectively in environmental policy making through a program of advanced, structured, and interdisciplinary study. Core coursework introduces the structures and functions of public institutions, including legislative, administrative, and regulatory systems, and examines how environmental policies are formulated, implemented and evaluated. Specialized courses allow students to explore substantive areas of environmental policy, ranging from climate change mitigation and the energy transition to resource management and environmental justice. Students develop practical skills, abilities, and knowledge spanning public policy analysis and deliberation, environmental planning, evidence-based decision-making, ethical reasoning, and beyond.

The Graduate Certificate in Environmental Policy is open to all persons who hold 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 four courses (see below). To receive the 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 have six years to complete the program.

Required Courses:		
POL SCI 4320	The Politics of Innovation	3
POL SCI 5300	Advanced Principles of Public Policy [1]	3
Choose two from the following:		
BIO SCI 6100	Biology Citizen Science	3
ECON 6440	Advanced Environmental and Natural Resource Economics	3
EDUC 5330	Community-Based Participatory Action Research	3
ENV ENG 5640	Environmental Law And Regulations	3
ENV ENG 5642	Sustainability, Population, Energy, Water, and Materials	3
ENV SCI 6560	Environmental Ecology and Management	3
ENV SCI 6667	Disaster Management in Changing Climates	3
HISTORY 4470	American Environmental History	3
NUC ENG 5507	Nuclear Policy	3
NUC ENG 5509	Nuclear Nonproliferation	3
PHILOS 4350	Environmental Ethics and Justice	3
PHILOS 4665	Creating Future Cities	3

1

Students who have completed POL SCI 3300 may substitute another approved course in the certificate program in place of POL SCI 5300, subject to approval by the certificate program director.

Justification for request

See above program description and purpose. New graduate certificate in Policy

Attach Budget

System Approval Letter: New Grad Cert - Environmental Policy.pdf

MDHE Approval

Supporting Documents:
Proposal for Grad Certificate in Environmental Policy.pdf
Provost Approval.docx
Dean signature.pdf
Program Change (PC) Form Env Pol.docx
CIP Code confirmation from Dr Raper.docx

Reviewer Comments

Shannon Fogg (sfogg) (05/20/26 10:47 am): Rollback: CIP COde

Hannah Johnson (hjh9x) (05/21/26 11:51 am): Rollback: Update effective catalog year and format of the Program Requirements and Description section.

Hannah Johnson (hjh9x) (05/21/26 1:04 pm): Combined the two course listings into one, added a footnote per request from Shannon Fogg.

Hannah Johnson (hjh9x) (05/22/26 8:02 am): Removed space in between 3.0 in the description.

Crystal Wilson (wilsoncry) (06/03/26 9:05 am): Corrected grammar and formatting.

Hannah Johnson (hjh9x) (06/09/26 2:20 pm): Added supporting document.

Hannah Johnson (hjh9x) (08/12/26 3:25 pm): Rollback: Rolled back due to not having the correct EC or CC forms for the courses listed in this DC. We will need EC forms for HISTORY 6470 and PHILOS 5277. We will need CC forms for ENV SCI 6560 and ENV SCI 6667.

Hannah Johnson (hjh9x) (10/13/26 11:35 am): HISTORY 6470 and PHILOS 5277 were removed due to denial from the CCC on the August 11, 2026 meeting. HISTORY 6470 was replaced with HISTORY 4470.

Hannah Johnson (hjh9x) (10/14/26 10:52 am): Changed the CIP Code from 44.0599 - Public Policy Analysis, Other. to 03.0209 Energy and Environmental Policy per email confirmation from Dr. Raper.

Hannah Johnson (hjh9x) (10/14/26 2:06 pm): Added the supporting doc of CIP Code confirmation.

Key: 440

Program Change Request

New Program Proposal

Date Submitted: 10/06/26 2:56 pm

Viewing: PROPOSED : Quantum Science and Technology

Last edit: 10/19/26 12:45 pm

Changes proposed by: Marco Cavaglia (cavagliam)

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Certificate
CIM Prospectus	
Academic Level	Undergraduate
Program Code	PROPOSED
Department	Physics
Discipline	Physics
Offered by	
Title	

In Workflow

1. **RPHYSICS 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. 10/02/26 1:53 pm Marco Cavaglia (cavagliam): Approved for RPHYSICS Chair
2. 10/02/26 3:20 pm Hannah Johnson (hjh9x): Rollback to Initiator
3. 10/06/26 2:57 pm Marco Cavaglia (cavagliam): Approved for RPHYSICS Chair
4. 10/19/26 11:40 am Hannah Johnson (hjh9x): Approved for CCC Secretary
5. 10/23/26 11:45 am Katie Shannon (shannonk):

Approved for Sciences DSCC Chair
6. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

Quantum Science and Technology

CIP Code 40.0802 - Atomic/Molecular Physics.

Purpose

The certificate is designed for majors in any STEM field who wish to enhance their degrees with quantum knowledge. It does not require prior advanced physics knowledge beyond the Engineering Physics class sequence. Students completing the proposed certificate will receive thorough training in the fundamentals of quantum science and technology, and they will have the opportunity to specialize in applications such as quantum simulations, quantum entanglement, quantum sensing quantum devices, quantum materials, machine learning applications in quantum science and others.

Intended Audience

Main Campus Students

Program-Specific Admission

Program Requirements and Description

Quantum Science and Technology

The certificate is designed for majors in any STEM field who wish to enhance their degrees with quantum knowledge. It does not require prior advanced physics knowledge beyond the Engineering Physics class sequence. Students completing the proposed certificate will receive thorough training in the fundamentals of quantum science and technology, and they will have the opportunity to specialize in applications such as quantum simulations, quantum entanglement, quantum sensing quantum devices, quantum materials, machine learning applications in quantum science and others.

Certificate Requirements:

Students must complete four different courses (12 credit hours), including one required course and three elective courses. The required course will be either Introduction to Quantum Science and Technology or Introduction to Quantum Mechanics, with each course offered annually. Elective courses will be offered on a regular rotation. The

planned rotation will ensure that students complete the certificate within two academic years of beginning the required course sequence. Existing and newly developed courses will be incorporated into the regular teaching assignments of participating faculty.

Learning Outcomes:

Upon completion of the Undergraduate Certificate in Quantum Science and Technology, students will be able to:

Explain fundamental quantum concepts, including quantum states, superposition, measurement, and entanglement, and distinguish quantum from classical behavior.

Apply appropriate mathematical, computational, or experimental methods to analyze quantum phenomena within their selected areas of study.

Explain and analyze how quantum principles underpin technologies or scientific applications encountered in their elective coursework.

Evaluate the capabilities and limitations of selected quantum technologies or applications using relevant physical principles and evidence.

Identify career pathways and emerging workforce opportunities in quantum science and technology, and recognize the skills and preparation needed.

Required course (select one):		
PHYSICS 4301	Introduction To Quantum Mechanics	3
PHYSICS 4401	Introduction to Quantum Science and Technology	3
Elective (three of the following):		
CHEM 5420	Advanced Chemical Kinetics (Elemental Quantum Chemistry)	3
COMP SCI 5602	Introduction to Cryptography	3
MATH 5680	Mathematics of Machine Learning	3
PHYSICS 4411	Physics of Quantum Information	3
PHYSICS 4421	Quantum Devices	3
PHYSICS 5343	Superconductivity	3
PHYSICS 5353	Quantum Materials	3
PHYSICS 5523	Quantum Optics	3

A Physics advisor may approve the substitution of a listed elective with an equivalent course offered by a participating STEM department.

Justification for request

Missouri is well positioned to participate in the rapidly growing quantum economy, with research and educational expertise already present at its universities. However, there is an opportunity to further strengthen the state's quantum workforce by expanding undergraduate education and training in quantum science and technology. At present, most formal quantum

training at Missouri universities is concentrated at the graduate level, with only a limited number of upper-level undergraduate courses in fields such as physics and chemistry. In contrast, industry projections indicate that the majority of emerging quantum jobs will require undergraduate-level training.

Attach Budget

System Approval Letter: quantum_approval_letter.pdf

MDHE Approval

Supporting Documents:
Quantum Certificate v8.pdf
CIP Code.pdf
Physics Chair_confirmation_quantum_electives.pdf
Physics Quantum Certificate Cover Memo for College Review.pdf
Physics PC.pdf

Reviewer Comments

Hannah Johnson (hjh9x) (10/02/26 3:20 pm): Rollback: Needs course listing and content in the program description area.

Hannah Johnson (hjh9x) (10/13/26 10:27 am): Placed in alpha/numerical order the last three courses.

Crystal Wilson (wilsoncry) (10/19/26 11:31 am): There is an issue with Chem 5420 pulling in two different titles. If you click on the course bubble, the correct title Elemental Quantum Chemistry is showing correctly. CourseLeaf is working to fix the issue. Adv. Chem. Kinetics is for course Chem 5430.

Key: 444

Program Change Request

Date Submitted: 09/28/26 4:11 pm

Viewing: PSYCH-BA : Psychological Science BA

Last approved: 03/02/26 1:38 pm

Last edit: 10/19/26 10:21 am

Changes proposed by: Crystal Wilson (wilsoncry)

Catalog Pages Using this Program

Psychological Science

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Arts
Academic Level	Undergraduate
Program Code	PSYCH-BA
Department	Psychological Science
Discipline	Psychology
Title	

In Workflow

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

Approval Path

1. 09/28/26 6:33 pm Clair Kueny (reynoldscla): Approved for RPSYCHOL Chair
2. 10/19/26 10:38 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:44 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Aug 4, 2014 by Nancy Stone (nstone)
2. Mar 20, 2015 by Nancy Stone (nstone)
3. Jun 19, 2015 by Nancy Stone (nstone)
4. Jul 21, 2015 by pantaleoa
5. Jun 28, 2017 by Nathan Weidner (weidnern)
6. Jun 14, 2019 by Susan Murray (murray)
7. Jul 1, 2020 by Devin Burns (burnsde)
8. Mar 4, 2021 by Devin Burns (burnsde)
9. May 5, 2021 by Devin Burns (burnsde)
10. Feb 25, 2022 by Devin Burns (burnsde)
11. Apr 14, 2023 by Devin Burns (burnsde)
12. Oct 17, 2023 by Devin Burns (burnsde)
13. Jul 5, 2024 by Crystal Wilson (wilsoncry)
14. Oct 25, 2024 by

Devin Burns (burnsde)
15. Jul 1, 2025 by Crystal Wilson (wilsoncry)
16. Jul 17, 2025 by Crystal Wilson (wilsoncry)
17. Mar 2, 2026 by Clair Kueny (reynoldscla)

Psychological Science BA

CIP Code 42.0101 - Psychology, General.

Program Requirements and Description

Bachelor of Arts
Psychological Science

A minimum of 120 credit hours is required for a bachelor of arts degree in psychological science and a cumulative grade point average of 2.0 must be obtained. The psychological science B.A. curriculum requires 6 hours of English composition, 10 hours of math and science, 12 hours in humanities, 12 hours in social sciences, 12-16 hours of foreign language, and a minimum of 35 hours in psychology courses. Up to 12 credit hours of advanced ROTC may be credited toward the degree. Specific requirements for the bachelor of arts degree are outlined in the sample program listed below. Additionally, students must complete all general education requirements as stated in the catalog, and as applicable to the student's catalog year. These requirements are built into the degree program.

ENGLISH 1120 and ENGLISH 1160 (6 hours).

Western civilization (HISTORY 1100 and HISTORY 1200) (6 hours).

Foreign languages for at least 3 semesters of basic study in French, German, Russian, Spanish or an approved substitute; or one year of basic study in a foreign language in either French, German, Russian, Spanish, or an approved substitute, and a humanities or social sciences course taught in a foreign country and employing the language of that country; or one year of basic study in each of two of the foreign languages of French, German, Russian or Spanish or an approved substitute (12-16 hours).

Science and math courses should include at least one course taken in biological (biological sciences) and one course completed in physical (chemistry, geology, physics) sciences. A laboratory course is required. STAT 1115 is also required (10 hours).

Humanities and fine arts courses used to satisfy this requirement must include one course in each of the three areas of literature (English or American), philosophy, and fine arts (art, music or theater), but not to include

studio and performance offerings (12 hours).
Social Science courses should include at least two of the following social science areas: economics, political science, or history (6 hours).

Psychology Courses (35 hours)		
Required:*		
General Skills Courses:		
PSYCH 1100	Introduction to Psychology	1
PSYCH 1101	General Psychology	3
PSYCH 2200	Research Methods	4
Content Courses:		
PSYCH 3310	Developmental Psychology	3
PSYCH 4400	Cognitive Psychology	3
PSYCH 4501	Abnormal Psychology	3
PSYCH 4600	Social Psychology	3
And one of the following 2 courses:		
PSYCH 4410	Neuroscience	3
PSYCH 4411	Sensation and Perception	3
Capstone Course:		
Select three credit hours from the Capstone courses:		
PSYCH 4995	Rationality	3
PSYCH 4720	Psychology of Social Technology	3
PSYCH 4590	Health Psychology	3
PSYCH 4992	Cross-Cultural Psychology	3
PSYCH 4993	Psychology of Gender	3
PSYCH 4990	Internship	0-6
PSYCH 4099	Undergraduate Research	0-6
*These required courses total 26 hours.		
Elective Courses:		
Select an additional 9 hours of psychology electives to complete the 35 hour degree requirement.		

Major-field requirements: A cumulative grade point average of 2.0 must be earned in all course work taken in the

major field. Upper-class (3000-4000-level) courses completed with grades of "D" may not be included in the course work for the major field without the approval of the chair of the department. At least nine hours of upper-class work in the major field must be completed in residence at Missouri S&T.

Minor: A minor will be selected from any discipline other than the major with the approval of the student's advisor. A total of at least 15 hours is required for the minor, but may include courses which also satisfy other requirements. At least nine hours must be beyond the introductory level. ~~level.~~ Additionally, six credit hours or more must be taken at the 3000-level or above.

Basic ROTC may be elected in the freshman and sophomore years, but is not creditable toward a degree. Up to 12 credit hours of advanced ROTC may be credited toward a degree.

Elective Credits: In consultation with his/her advisor, each student will select sufficient additional courses to complete a minimum of 120 credit hours.

Bachelor of Arts Psychological Science (Secondary Education Emphasis Area)

You may earn a B.A. degree in psychological science from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with the secondary education emphasis area program.

To be eligible for student teaching and certification, students must have a 2.5 content GPA and a 3.0 education GPA. Students must also pass the appropriate content assessment. Missouri S&T allows students to choose their student teaching placement, if the district agrees and a qualified cooperating teacher is available. This program is approved by the Missouri Department of Elementary and Secondary Education. License reciprocity determinations outside of Missouri can be found at https://teaching.missouri.edu/student/state-authorization/mst/licensure.

A degree with this emphasis area requires 122 credit hours. The required courses are provided below.

Communications Skills: 6 semester hours		
ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
Humanities: 9 semester hours		
ART 1180	Art Appreciation	3
or MUSIC 1150	Music Appreciation	
or THEATRE 1150	Theatre for Social Change	
Philosophy course		3
ENGLISH 1211	British Literature I: The Beginnings To 1800	3
or ENGLISH 1212	British Literature II 1800 To Present	
or ENGLISH 1221	American Literature: 1600 To 1865	

or ENGLISH 1222	American Literature: 1865 To Present	
or ENGLISH 1231	World Literature I: From The Beginnings To The Renaissance	
Social Sciences: 21 semester hours		
HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
POL SCI 1200	American Government	3
POL SCI 3211	American Political Parties	3
or POL SCI 3300	Principles Of Public Policy	
or POL SCI 3760	The American Presidency	
or POL SCI 3763	Contemporary Political Thought	
PSYCH 1101	General Psychology	3
ECON 1100	Principles Of Microeconomics	3
or ECON 1200	Principles Of Macroeconomics	
Geography		3
Natural Science/Mathematics: 13 semester hours		
One course in Physics, Chemistry or Geology		3
Natural Sciences Lab		1
Mathematics 1120, 1103, 1140+		3
STAT 1115	Statistics For The Social Sciences I	3
BIO SCI 1113	General Biology	3
Professional Requirements: 25 semester hours		
EDUC 1074	Foundations of Education in a Diverse Society	3
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
EDUC 3340	Assessment of Student Learning	3
EDUC 3216	Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 4298	Student Teaching Seminar	1
PSYCH 2300	Educational Psychology	3

PSYCH 3311	Psychological & Educational Development Of The Adolescent	3
PSYCH 4310	Psychology Of The Exceptional Child	3
Clinical Experience: 16 semester hours		
EDUC 1104	Teacher Field Experience I	1
~~EDUC 1164~~	~~Teacher Field Experience II~~	~~2~~
EDUC 3164	Teacher Field Experience II	2
EDUC 3298	Teacher Field Experience III	1
EDUC 4299	Student Teaching	12
Psychology Degree Requirements: 17 semester hours		
PSYCH 1100	Introduction to Psychology	1
PSYCH 2200	Research Methods	4
PSYCH 3310	Developmental Psychology	3
PSYCH 4400	Cognitive Psychology	3
PSYCH 4501	Abnormal Psychology	3
PSYCH 4600	Social Psychology	3
Certification: 15 semester hours		
6 hours of American History from the following:		
HISTORY 3320	Colonial America	
HISTORY 3325	Revolutionary America, 1754-1789	
HISTORY 3340	Age Of Jefferson And Jackson	
HISTORY 3345	Civil War And Reconstruction	
HISTORY 3360	Recent United States History	
HISTORY 3425	History Of The Old South	
HISTORY 3426	History Of The Modern South	
HISTORY 3480	History Of Baseball	
HISTORY 3440	Grunts: 20th Century Americans In Combat	
HISTORY 3442	The United States in Vietnam	
HISTORY 3761	U.S. Diplomatic History to World War II	

HISTORY 4435	History of the American West
9 hours of World History from the following:	
HISTORY 1100	Early Western Civilization
HISTORY 1200	Modern Western Civilization
HISTORY 2220	Making Of Modern Britain
HISTORY 2222	The Making Of Modern France
HISTORY 2224	Making Of Modern Russia
HISTORY 3130	Medieval History I
HISTORY 3135	Medieval History II
HISTORY 3140	History Of Renaissance Thought
HISTORY 3230	Europe In The Age Of The French Revolution And Napoleon
HISTORY 3235	Foundations Of Contemporary Europe 1815-1914
HISTORY 3240	Contemporary Europe
HISTORY 3660	Modern East Asia

Justification for request

Education department is changing EDUC 1164 to EDUC 3164. Per the justification on the CC form, "Because of the 60 hour pathway legislation, we need to change this course to a 3000 level because it is not part of the first two years of community college, transfer coursework. This is one of a series of changes we are making to our program in anticipation of those requirements. We will be making the individual course changes and then submitting one DCC form to capture all of them."

Attach Budget

System Approval Letter

MDHE Approval: MDHE Approval Letter_S&T January 2026.pdf

Supporting Documents:
Psych-Title Change-Psychogocial Sciences.pdf
MS&T PC April 2023_Approval Degree Change Name.pdf
Email thread confirming change to Psych Science.pdf
Psychological Science Department Approval.pdf
Curriculum Before and After BA Psych Sci.docx
Program Change (PC) Form_Removing Emphasis Areas Psych BA.docx

Program Change (PC) Form_Removing Emphasis Areas Psych BA.pdf

Delete Emphasis Area.pdf

Reviewer

Comments

Crystal Wilson (wilsoncry) (10/19/26 10:21 am): Added language to the minor that minor must include at least six hours at the 3000-level or above.

Key: 192

Program Change Request

Date Submitted: 10/05/26 7:16 pm

Viewing: SEMI EN-BS : Semiconductor Engineering BS

Last approved: 12/24/25 9:36 am

Last edit: 10/07/26 12:20 pm

Changes proposed by: David Lipke (lipked)

Catalog Pages Using this Program

Semiconductor Engineering

In Workflow

1. RMATSENG 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

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Bachelor of Science
Academic Level	Undergraduate
Program Code	SEMI EN-BS
Department	Materials Science & Engineering
Discipline	Semiconductor Engineering
Title	

Approval Path

1. 10/06/26 10:18 am Sridhar Seetharaman (ssgw8): Approved for RMATSENG Chair
2. 10/19/26 10:01 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/23/26 12:48 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:29 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. Jul 1, 2025 by David Lipke (lipke)
2. Dec 24, 2025 by Crystal Wilson (wilsoncry)

Semiconductor Engineering BS

CIP Code 14.9999 - Engineering, Other.

Program Requirements and Description

Bachelor of Science

Semiconductor Engineering

For the Bachelor of Science degree in Semiconductor Engineering a minimum of 127 credit hours (Semiconductor Device Engineering emphasis area) or 128 credit hours (Semiconductor Process Engineering emphasis area) is required. A cumulative grade point average of at least 2.0 is required for all courses applied toward the degree, as well as for all required courses in the major field of study, defined as SEMI ENG, ELEC ENG, COMP ENG, and/or CHEM ENG.

Semiconductor Device Engineering emphasis area

First Year

First Semester	Credits	Second Semester	Credits
CHEM 1310[1]	4	MECH ENG 1720	3
CHEM 1319[1]	1	CHEM 1320[1]	3
ENGLISH 1120	3	MATH 1215[1]	4
FR ENG 1100	1	PHYSICS 1135	4
General Education Elective[2]	3	SEMI ENG 1100	1
MATH 1214 or 1211	4		
	16		15

Second Year

First Semester	Credits	Second Semester	Credits
COMP SCI 1500 or 1972 ***and*** 1982	3	MATH 2222[1]	4
ELEC ENG 2100[1]	3	SEMI ENG 2100[1]	3
ELEC ENG 2101[1]	1	ELEC ENG 2120[1]	3
MATH 3304	3	COMP ENG 2210[1]	3
PHYSICS 2135[1]	4	COMP ENG 2211	1
~~SEMI ENG 3230~~	~~3~~	ENGLISH 1160, or 3560, or SPM S 1185[3]	3
SEMI ENG 2200	3		
	17		17

Third Year

First Semester	Credits	Second Semester	Credits
SEMI ENG 3019[1]	1	SEMI ENG 3101[1]	3
SEMI ENG 3100[1]	3	~~SEMI ENG 3410~~	~~3~~
ELEC ENG 3100	3	SEMI ENG 3415	3
ELEC ENG 3101	1	ELEC ENG 3250	3
STAT 3117	3	ELEC ENG 3600	3
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	General Education Elective[2]	3
General Education Elective[2]	3		
	17		15

Fourth Year

First Semester	Credits	Second Semester	Credits
SEMI ENG 4096[1]	3	SEMI ENG 4097	3
SEMI ENG 4100	3	SEMI ENG 4200	3
SEMI ENG 4101	3	SEMI ENG 4400	3
SEMI ENG 4300	3	General Education Elective[2]	3
COMP ENG 5210	3	Free Elective	3
	15		15

Total Credits: 127

1

A grade of "C" or better is required in the following courses to satisfy prerequisite requirements for subsequent coursework and to meet graduation criteria: CHEM 1310, CHEM 1319, CHEM 1320, COMP ENG 2210, ELEC ENG 2100, ELEC ENG 2101, ELEC ENG 2120, MATH 1215, MATH 2222, PHYSICS 2135, SEMI ENG 2100, SEMI ENG 3019, SEMI ENG 3100, SEMI ENG 3101, SEMI ENG 4096.

2

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

3

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.

Semiconductor Process Engineering emphasis area

First Year

First Semester	Credits	Second Semester	Credits
ENGLISH 1120	3	MECH ENG 1720	3
CHEM 1310[1]	4	CHEM 1320[1]	3
CHEM 1319[1]	1	MATH 1215[1]	4
MATH 1214 or 1211	4	PHYSICS 1135	4
FR ENG 1100	1	SEMI ENG 1100	1
General Education Elective[2]	3		
	16		15

Second Year

First Semester	Credits	Second Semester	Credits
COMP SCI 1500 or 1972 ***and*** 1982	3	CHEM ENG 2110[1]	3
PHYSICS 2135[1]	4	SEMI ENG 2100[1]	3
MATH 2222[1]	4	MATH 3304[1]	3
CHEM ENG 2100[1]	4	ELEC ENG 2100	3
General Education Elective[2]	3	ELEC ENG 2101[1]	1
		ENGLISH 1160, or 3560, or SPM S 1185[3]	3
	18		16

Third Year

First Semester	Credits	Second Semester	Credits

CHEM ENG 3111	3	CHEM ENG 3150	3
CHEM ENG 3101	4	ELEC ENG 2200	3
CHEM ENG 3120	3	ELEC ENG 2201	1
SEMI ENG 3019[1]	1	SEMI ENG 3101[1]	3
SEMI ENG 3100[1]	3	~~SEMI ENG 3410~~	~~3~~
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	SEMI ENG 3415	3
		STAT 3113	3
	17		16

Fourth Year

First Semester	Credits	Second Semester	Credits
CHEM ENG 4110	3	SEMI ENG 4097	3
CHEM ENG 4101	3	SEMI ENG 4200	3
SEMI ENG 4096[1]	3	General Education Elective[2]	3
SEMI ENG 4101	3	General Education Elective[2]	3
SEMI ENG 4300	3	Free Elective	3
	15		15

Total Credits: 128

1

A grade of “C” or better is required in the following courses to satisfy prerequisite requirements for subsequent coursework and to meet graduation criteria: CHEM 1310, CHEM 1319, CHEM 1320, CHEM ENG 2100, CHEM ENG 2110, ELEC ENG 2101, MATH 1215, MATH 2222, MATH 3304, PHYSICS 2135, SEMI ENG 2100, SEMI ENG 3019, SEMI ENG 3100, SEMI ENG 3101, SEMI ENG 4096.

2

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

3

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.

Justification for request

Changing SEMI ENG 3410 to SEMI ENG 3415 and SEMI ENG 3230 to SEMI ENG 2200 due to course renumberings.

Attach Budget	Semiconductor Engineering Pro Forma.pdf
System Approval Letter	0 - Board Approval_ BS Semiconductor Engineering – S&T.pdf
MDHE Approval	MDHE Approval Letter_ST_MAR 2025.pdf
Supporting	ST BS Semiconductor Engineering Proposal_Final.pdf

Documents

Reviewer

Comments

Hannah Johnson (hjh9x) (10/07/26 12:20 pm): Updated SEMI ENG 3230 to be SEMI ENG 2200 with the updated CC form. Updated SEMI ENG 3410 to be SEMI ENG 3415 with the updated CC form. These will need to be hyperlinked after approval from the CCC.

Program Change Request

Date Submitted: 05/05/26 11:21 am

Viewing: TEACH-CTU : Teaching and Learning Undergraduate Certificate

Last approved: 03/24/26 10:11 am

Last edit: 05/05/26 1:43 pm

Changes proposed by: Beth Kania-Gosche (bakm75)

Catalog Pages Using this Program

Education

Effective Catalog Edition	FS2027-SP2028
Start Term	Fall 2027
Program Type	Certificate
Academic Level	Undergraduate
Program Code	TEACH-CTU
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. 05/05/26 1:35 pm Beth Kania-Gosche (bakm75): Approved for REDUCATION Chair
2. 10/19/26 11:17 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/19/26 11:44 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

History

1. May 12, 2021 by Beth Kania-Gosche (bakm75)
2. Jun 14, 2021 by Crystal Wilson (wilsoncry)
3. Jul 1, 2025 by Beth Kania-Gosche (bakm75)
4. Mar 24, 2026 by Beth Kania-Gosche (bakm75)

Teaching and Learning Undergraduate Certificate

CIP Code	13.1206 - Teacher Education, Multiple Levels.

Intended Audience

Main Campus Students

Program Requirements and Description

Teaching and Learning Undergraduate Certificate

This certificate is designed to give students background in important educational concepts such as instructional design, learner engagement, assessment, diversity, and inclusion. This would be helpful for students who intend to work in higher education or nonprofit organizations as well as those who want to conduct industry training. The courses in this certificate may be used to meet some of the requirements for teacher certification programs. This certificate aligns with the Missouri Department of Elementary and Secondary Education requirements for a Temporary Authorization Certificate.

Certificate Requirements

A student must complete the following courses.

EDUC 1074	Foundations of Education in a Diverse Society	3
EDUC 2310	Education Of The Exceptional Child	3
EDUC 3216	Literacy in the Content Area	3
EDUC 3340	Assessment of Student Learning	3

Students must choose six hours of electives from the following list. These courses should align with the students' intended certification area.

EDUC 1240	Technology and AI Use in Education	3
EDUC 2102	Educational Psychology	3
EDUC 2430	Diverse Literature for Children	3
EDUC 3170	Teaching Reading and Writing in Middle/High School	3
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
~~EDUC 3430~~	~~Diverse Literature for Children~~	~~3~~

Justification for request

Course number changes and new course as option.

Attach Budget

System Approval Letter

MDHE Approval

Supporting Documents

Reviewer Comments

Hannah Johnson (hjh9x) (05/05/26 1:43 pm): Alphabetized course listing.

Key: 378

Experimental Change Request

New Proposal

Date Submitted: 09/30/26 1:11 pm

Viewing: **CHEM 5001.006: Practical Artificial Intelligence for Chemistry**

Last edit: 10/23/26 1:51 pm

Changes proposed by: Thomas Schuman (tschuman)

Requested Effective Date	Spring 2027
Department	Chemistry (RCHEMIST)
Discipline	Chemistry (CHEM)
Course Number	5001
Topic ID	006
Experimental Title	

In Workflow

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

Approval Path

1. 09/30/26 1:28 pm Chariklia Sotiriou-Leventis (cslevent): Approved for RCHEMIST Chair
2. 10/05/26 8:34 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/05/26 1:36 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

Experimental Abbreviated Course Title: Pract AI for Chemists

Co-Listed Course:

Instructors:
Vadym Mochalin

Experimental Catalog Description:
Dual-listed for upper-level undergraduate and graduate students in the Department of Chemistry. The course teaches chemists to apply modern AI tools—cheminformatics libraries, machine-learning property and activity prediction, computer-aided retrosynthesis, generative molecular design, and large language model (LLM) research assistants—to authentic chemical problems, while developing the disciplinary judgment to use those tools responsibly. Its organizing principle is “verify, don’t trust”; every AI output is treated as a hypothesis to be tested against chemical theory, experimental data, and first-principles reasoning.

Prerequisite(s):
Chem 2420.

Corequisite(s):

Field Trip Statement:

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Grading Basis: Graded

Repeatable: No

Justification for experimental course:

Dean of CASE has requested that we offer coursework that teaches AI for our discipline

Reviewer
Comments

Hannah Johnson (hjh9x) (10/02/26 10:42 am): Added first name to the professor, added a period to the prereq, selected graded for grading basis.

Hannah Johnson (hjh9x) (10/05/26 8:34 am): Corrected sentence format in the catalog description. Changed colon to a semi- colon in catalog description.

Hannah Johnson (hjh9x) (10/23/26 1:51 pm): Assigned 006 as the topic ID.

Key: 578

Experimental Change Request

New Proposal

Date Submitted: 09/10/26 10:45 am

Viewing: **COMP ENG 5001.008: Machine Learning for Engineers**

Last edit: 10/23/26 1:52 pm

Changes proposed by: R.Joe Stanley (stanleyj)

Requested Effective Date	Spring 2027
Department	Electrical & Computer Engr (RELECENG)
Discipline	Computer Engineering (COMP ENG)
Course Number	5001
Topic ID	008
Experimental Title	

In Workflow

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

Approval Path

1. 09/10/26 10:47 am Jonathan Kimball (kimballjw): Approved for RELECENG Chair
2. 10/05/26 8:39 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:37 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:27 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

Machine Learning for Engineers

Experimental Abbreviated Course Title: Machine Learning for Eng

Co-Listed Course

Instructors

Mohamed Nafea

Experimental Catalog Description

This course offers a rigorous introduction to modern machine learning, covering core theory, classical algorithms, and deep learning, with a strong emphasis on practical modeling and a substantial semester-long project. Topics include supervised learning (generative vs discriminative, parametric vs non-parametric, neural networks, support vector machines, foundation models & LLMs); unsupervised learning (clustering, dimensionality reduction, kernel methods); learning theory (bias-variance tradeoffs, practical considerations); foundation models and reinforcement learning. Students will learn to formulate real-world problems and reason about their generalization behavior. Through a semester-long project, the course will also navigate recent applications of deep learning such as to robotics, control, autonomous navigation, data engineering, bioinformatics, speech recognition, natural language and web data processing.

Prerequisite(s)

Comp Sci 1500, Math 3108, Stat 3117 or equivalent.

Corequisite(s)

Field Trip Statement

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Grading Basis	Graded
Repeatable	No

Justification for experimental course:

This course provides students with an introduction to foundational topics in machine learning that can be applied to the different emphasis areas in the Computer Engineering program.

Reviewer Comments

Hannah Johnson (hjh9x) (09/18/26 8:11 am): Added a period after the prereq and coreq. Selected graded for grading basis. Removed 4001 from the course ID.

Hannah Johnson (hjh9x) (09/22/26 7:05 am): Removing to coreq of "Stat 3117 or equivalent for students enrolling in the Comp Eng 4001 course." per Ronald Stanley's email.

Hannah Johnson (hjh9x) (10/23/26 1:52 pm): Assigned 008 as the topic ID.

Experimental Change Request

New Proposal

Date Submitted: 09/17/26 2:12 pm

Viewing: **NUC ENG 5001.003: Computational Methods for Nuclear Materials**

Last edit: 10/23/26 1:54 pm

Changes proposed by: Meral Sharkass (msww7)

Requested Effective Date	Spring 2027
Department	Nuclear Eng & Radiation Sci (RNUCLENG)
Discipline	Nuclear Engineering (NUC ENG)
Course Number	5001
Topic ID	003
Experimental Title	

In Workflow

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

Approval Path

1. 09/18/26 12:11 pm Joseph Newkirk (jnewkirk): Approved for NUC ENG Chair
2. 10/05/26 8:42 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:39 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

Computational Methods for Nuclear Materials

Experimental Abbreviated Course Title

CMNM

Co-Listed Course

Instructors

Meral Sharkass

Experimental Catalog Description

This course introduces computational approaches for understanding the behavior and degradation of nuclear materials. The course is organized around fundamental materials problems, with computational techniques such as molecular dynamics (MD) introduced as tools to investigate the underlying physical mechanisms. Topics include radiation damage, thermal and mechanical degradation, hydrogen and helium behavior, corrosion and oxidation, and plasma–material interactions. Representative nuclear materials are used as case studies, with hands-on computational exercises focused on building models, performing simulations,

visualizing and analyzing results, and connecting computational findings to material performance in nuclear environments.

Prerequisite(s)

Nuc Eng 2105 and Nuc Eng 3205.

Corequisite(s)

Field Trip Statement

Field trips may be arranged to local nuclear, materials, or research facilities when available and relevant to course topics.

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Grading Basis: Graded

Repeatable: No

Justification for experimental course:

Nuclear materials operate under demanding environments involving elevated temperatures, radiation damage, chemical reactions, mechanical stresses, thermal gradients, and interactions with coolants or plasmas. Therefore, understanding how materials respond to these conditions is essential for the design, safety, reliability, and lifetime of nuclear systems.

Reviewer Comments

Hannah Johnson (hjh9x) (09/21/26 2:28 pm): Removed 'none' from the coreqs box, removed the 'prerequisites:' from the prereq box. Selected graded for grading basis.

Hannah Johnson (hjh9x) (10/02/26 8:11 am): Removed "NUC ENG 5003" from the topic ID and replaced it with TBD.

Hannah Johnson (hjh9x) (10/02/26 8:14 am): Added "Nuc Eng 2105 and Nuc Eng 3205" per email from Dr. Sharkass to the prereqs.

Hannah Johnson (hjh9x) (10/02/26 10:37 am): Removed "Undergraduate-level nuclear

engineering or materials science, and basic thermodynamics." from prereq section per email from Dr. Sharkass.

Hannah Johnson (hjh9x) (10/02/26 2:34 pm): Updated catalog description with a shortened version per email from Dr. Sharkass.

Hannah Johnson (hjh9x) (10/23/26 1:54 pm): Assigned 003 to topic ID.

Experimental Change Request

New Proposal

Date Submitted: 09/18/26 11:38 am

Viewing: **NUC ENG 5001.004: Plasma Material Interactions**

Last edit: 10/23/26 1:54 pm

Changes proposed by: Meral Sharkass (msww7)

Requested Effective Date	Spring 2027
Department	Nuclear Eng & Radiation Sci (RNUCLENG)
Discipline	Nuclear Engineering (NUC ENG)
Course Number	5001
Topic ID	004
Experimental Title	

In Workflow

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

Approval Path

1. 09/18/26 12:11 pm Joseph Newkirk (jnewkirk): Approved for NUC ENG Chair
2. 10/05/26 8:44 am Hannah Johnson (hjh9x): Approved for CCC Secretary
3. 10/14/26 2:39 pm Theresa Swift (thswift): Approved for Engineering DSCC Chair
4. 10/26/26 8:28 am Hannah Johnson (hjh9x): Approved for Pending CCC Agenda post

Plasma Material Interactions

Experimental Abbreviated Course Title: PMI

Co-Listed Course

Instructors

Meral Sharkass

Experimental Catalog Description

This course introduces the fundamental physics and engineering of plasma–material interactions (PMI) through the life cycle of particles in fusion systems. Beginning with the fusion reaction and the resulting particles, students follow their journey through the plasma to plasma-facing surfaces and examine the physical processes that occur when particles interact with materials, including reflection, implantation, sputtering, energy deposition, defect formation, diffusion, trapping, desorption, and recycling. The course connects these microscopic processes to macroscopic material evolution and plasma consequences, including

erosion, impurity generation, hydrogen retention, surface modification, and material degradation.

Prerequisite(s)

Nuc Eng 2105 and Nuc Eng 3205.

Corequisite(s)

Field Trip Statement

Field trips may be arranged to local nuclear, materials, or research facilities when available and relevant to course topics.

Credit Hours

Credit Type	Credit Hours
Lecture	3

Total: 3

Required for Majors: No

Elective for Majors: Yes

Grading Basis: Graded

Repeatable: No

Justification for experimental course:

Plasma–material interactions are a critical component of fusion energy systems and other advanced plasma technologies because the interaction between energetic particles, plasma-facing materials, and surfaces directly influences material lifetime, plasma performance, component reliability, and system safety. Understanding these interactions requires knowledge spanning plasma physics, materials science, surface science, collision physics, and computational modeling.

The course will provide students with both fundamental understanding and practical experience in analyzing PMI problems. It is intended to prepare students for advanced study, research, and engineering work involving fusion materials, plasma-facing components, radiation effects, materials degradation, and computational materials science.

Reviewer Comments

Hannah Johnson (hjh9x) (09/21/26 2:30 pm): Removed 'none' from the coreq section, selected

graded for grading basis. Placed first letters in the prereq's in the lowercase.

Hannah Johnson (hjh9x) (10/02/26 8:12 am): Removed "NUC ENG 5004" from the topic ID and replaced it with TBD.

Hannah Johnson (hjh9x) (10/02/26 8:16 am): Added Nuc Eng 2105 and Nuc Eng 3205 to the prereqs per email from Dr. Sharkass.

Hannah Johnson (hjh9x) (10/02/26 10:37 am): Removed "Introductory nuclear engineering and calculus-based physics; differential equations or equivalent mathematical preparation." from prereq section per email from Dr. Sharkass.

Hannah Johnson (hjh9x) (10/02/26 2:35 pm): Updated catalog description with a shortened version per email from Dr. Sharkass.

Hannah Johnson (hjh9x) (10/23/26 1:54 pm): Assigned 004 as the topic ID.

Missouri University of Science and Technology
Rolla, Missouri

Curriculum Committee
Chair: Cecil Chua
Phone: 1(573)5787781
Email: cchua@mst.edu

Sep 22 2026

Proposal to Allow Versions of Undergraduate/Graduate Courses to Automatically Obtain Permanent Course Numbers when an equivalent Graduate/Undergraduate Course Exists

In the current system, programs can offer graduate versions of undergraduate courses. These cover the same course content as the undergraduate course with an additional learning component (e.g., an extra project). In many cases, the graduate version is taught simultaneously with the undergraduate course.

In addition, some programs offer courses at the 5000-level that want to create parallel courses at the 4000-level.

If the proposed course is not required for a certification, such a course must currently wait until it has been offered twice before obtaining a permanent number.

The Campus Curriculum Committee proposes a rule change where any 5000-level version of an existing 4000-level course or a 4000-level version of an existing 5000-level course can be created with a permanent course number, bypassing the need to go through the experimental course stage. The new course would still need to go through the curriculum process.

The new course must be distinguished from the existing course, where the higher-level version must incorporate a significant additional learning component.

Vote:

On Sept 22, 2026 the CCC voted on the proposal. In attendance:

Cecil Chua*

Michael Davis*

Hannah Johnson

Kyle Perry*

Paul Runnion*

Katie Shannon*

Alejandra Sobrado*

Theresa Swift*

Crystal Wilson

An equal opportunity employer

Jade Winzer

*Voting members

The vote was 6/7 in favor.

Sincerely,



Cecil Chua

Campus Curriculum Committee Chair

2026-2027 CCC Calendar

CCC Meetings are from 8:15am – 9:30am in Fulton Hall 120 *(August 2026- December 2026)*

CCC INFORMATION	Department submission to Registrar *Fridays*	DSCC submission to Registrar *Fridays*	CCC Meeting *Tuesdays*	Faculty Senate Meeting *Thursdays*
EC forms for Fall 2026 & Affecting CC forms for Summer 2027 & Spring 2027	July 10, 2026	July 24, 2026	August 11, 2026	September 17, 2026
Non-affecting CC forms for Summer 2027 & Spring 2027	August 14, 2026	September 4, 2026	September 22, 2026	October 22, 2026
	September 4, 2026	September 25, 2026	October 13, 2026	November 12, 2026
Affecting CC forms for Fall 2027	October 2, 2026	October 23, 2026	November 10, 2026	December 10, 2026
EC forms for Spring 2027	December 4, 2026	December 18, 2026	January 12, 2027	February 11, 2027
	January 8, 2027	January 29, 2027	February 16, 2027	March 18, 2027
	February 12, 2027	March 5, 2027	March 23, 2027	April 22, 2027
DC forms for Fall 2027	March 5, 2027	March 26, 2027	April 13, 2027	May 13, 2027
EC forms for Summer 2027 & non-affecting CC forms for Fall 2027	April 2, 2027	April 23, 2027	May 11, 2027	June 24, 2027
EC forms for Fall 2027	TBD	TBD	TBD	TBD

Official dates and location for Spring 2027 CCC meetings will be determined at a later date.