



**Campus Curricula Committee Meeting Agenda**

**May 9, 2017**

**9:00-10:30 am, 106 Parker Hall**

**(For Faculty Senate Meeting of June 15, 2017)**

**Discussion on the proposed revision of “The Approved List of Humanities and Social Sciences Courses for Engineering Degrees” within undergraduate engineering degree programs.**

**Review of submitted Course Change forms:**

File 1680.1	CER ENG 4220: Mechanical Properties of Ceramics
File 4413	CER ENG 4410: Introduction to Integrated Computational Materials Engineering
File 4414	CER ENG 6410: Advanced Integrated Computational Materials Engineering
File 537.1	COMP SCI 6303: Pervasive Computing
File 1741.1	COMP SCI 6600: Formal Methods in Computer Security
File 2186.1	ELEC ENG 2800: Electrical Circuits
File 90.1	ELEC ENG 3340: Basic Programmable Logic Controllers
File 4403	ELEC ENG 5325: Applied Nonlinear Control
File 4408	ENG MGT 6216: Financial Data Analysis
File 4423	GEOLOGY 4002: Internship
File 4424	GEOLOGY 5085: Internship
File 4415	GEOLOGY 5681: Lidar Principles and Application
File 4425	GEOLOGY 6085: Internship
File 385.1	GEOLOGY 6651: Granite and Rhyolite Petrogenesis
File 1245.3	MECH ENG 5212: Introduction to Finite Element Analysis
File 2520.1	MIN ENG 2126: Introduction to Mining Safety
File 2268.1	MIN ENG 2412: Principles of Mineral Processing
File 1534.1	MIN ENG 2925: Surveying for Mineral Engineers
File 3913	MIN ENG 3913: Mineral Identification and Exploration
File 1944.6	MIN ENG 4096: Computer Aided Mine Design
File 1128.7	MIN ENG 4097: Capstone Design Project
File 2260.5	MIN ENG 4113: Mine Atmosphere Control
File 1302.5	MIN ENG 4512: Mine Management
File 1726.1	MIN ENG 4522: Ore Reserve Analysis and Geostatistics
File 1145.4	MIN ENG 4912: Mine Power and Drainage
File 1524.1	MIN ENG 4932: Underground Mining Methods and Equipment
File 682.1	MIN ENG 4933: Surface Mining Methods and Equipment
File 408.1	MIN ENG 5612: Principles of Explosives Engineering
File 300.1	MIN ENG 5913: Advanced Computer Aided Mine Design



File 134.1	NUC ENG 4259: Licensing of Nuclear Power Plants
File 2371.1	NUC ENG 4496: Nuclear System Design I
File 4421	PET ENG 2002: Cooperative Work Training
File 1367.4	SYS ENG 6103: Systems Life Cycle Costing

**Review of submitted Degree Change forms:**

File 146.17	BIO SC-BA: Biological Sciences BA
File 16.21	CHEM-BS: Chemistry BS
File 28.16	CMP SC-BS: Computer Science BS
File 29.9	CMP SC-MI: Computer Science Minor
File 149.21	CR ENG-BS: Ceramic Engineering BS
File 95.16	MI ENG-BS: Mining Engineering BS
File 169.7	MI ENG-MS: Mining Engineering MS
File 90.24	MT ENG-BS: Metallurgical Engineering BS
File 242	PROPOSED: Latin American Studies for Technical Applications Minor
File 192.15	PSYCH-BA: Psychology BA
File 193.17	PSYCH-BS: Psychology BS

**Review of submitted Experimental Course forms:**

File 4405	CIV ENG 5001: Wind Engineering
File 4404	CIV ENG 6001: Soil Mechanics for Unsaturated Soils
File 4412	CIV ENG 6001: Understanding Rheology of Cement-Based Materials
File 4419	COMP ENG 6001: Advanced Computational Intelligence
File 4410	COMP SCI 5001: Introduction to Deep Learning
File 4409	COMP SCI 5001: Introduction to Machine Learning
File 4397	ELEC ENG 5001: Design and Innovation for Engineers
File 4418	ELEC ENG 6001: Advanced Computational Intelligence
File 4399	GEO ENG 5001: Research Methods in Groundwater and Surface Water
File 4398	PET ENG 6001: Advanced Digital Applications in Petroleum Engineering
File 4422	PET ENG 6001: Flow through Porous Media
File 4420	PET ENG 6001: Numerical Methods for Reservoir Simulation

**Review of tabled items:**

File: 4401	ENGLISH 2411: Costa Rica in Text
File: 1974.1	MET ENG 1210: Chemistry of Materials

# Course Inventory Change Request

Date Submitted: 04/18/17 4:17 pm

Viewing: **CER ENG 4220 : Mechanical Properties Of Ceramics**

File: 1680.1

Last edit: 04/18/17 4:17 pm

Changes proposed by: smiller

Programs referencing this course [CR ENG-BS: Ceramic Engineering BS](#)

Requested Effective Change Date: Fall 2014

Department: Materials Science & Engineering

Discipline: Ceramic Engineering (CER ENG)

Course Number: 4220

Title: Mechanical Properties Of Ceramics

Abbreviated Course Title: Mech Prop Of Ceramics

Catalog Description: This course will treat the theory and testing practice related to design based on the mechanical properties of ceramics. The course also includes a laboratory consisting of experiments for the characterization of the mechanical properties of ceramics.

Prerequisites: "C" or better grade in Civ Eng 2210.

Field Trip Statement

Credit Hours: LEC: 3      LAB: 0 ±      IND: 0      RSD: 0      Total: 3 4

Required for Majors: No

Elective for Majors: No

Justification for change: Remove lab component to allow curriculum changes

Semesters previously offered as an

## 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. Ishelton
11. Peoplesoft

## Approval Path

1. 04/18/17 4:20 pm mjokeefe: Approved for RMATSENG Chair
2. 04/19/17 9:38 am Lahne Black (lahne): Approved for CCC Secretary
3. 04/19/17 9:40 am sraper: Approved for Engineering DSCC Chair
4. 04/20/17 4:12 pm Lahne Black (lahne): Approved for Pending CCC Agenda post

experimental

course

Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 1680

[Preview Bridge](#)

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 03/17/17 9:31 am

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

File: 4413

Last edit: 04/10/17 11:26 am

Changes proposed by: smiller

Programs referencing this course	<a href="#">CR ENG-BS: Ceramic Engineering BS</a>				
Requested Effective Change Date	Fall 2017				
Department	Materials Science & Engineering				
Discipline	Ceramic Engineering (CER ENG)				
Course Number	4410				
Title	Introduction to Integrated Computational Materials Engineering				
Abbreviated Course Title	Intro to ICME				
Catalog Description	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.				
Prerequisites	A grade of "C" or better in both Cer Eng 3220 and Math 3304, and in either Cer Eng 2110 or Met Eng 2110.				
Field Trip Statement					
Credit Hours	LEC: 2	LAB: 1	IND: 0	RSD: 0	Total: 3
Required for Majors	Yes				
Elective for Majors	No				

### 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. Ishelton
11. Peoplesoft

### Approval Path

1. 03/17/17 10:15 am  
mjokeefe:  
Approved for RMATSENG Chair
2. 03/17/17 12:42 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 04/10/17 11:26 am  
sraoper: Approved for Engineering DSCC Chair
4. 04/10/17 2:21 pm  
Kristy Giacomelli (kristyg):  
Approved for

Justification for new course: Required for latest (Fall 2017) Ceramic Engineering curriculum.

Pending CCC Agenda post

Semesters previously offered as an experimental course: Spring semester of 2013, 2014, and 2015 (as MSE 5001)

Co-Listed Courses:

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Course Reviewer Comments: **sraper (04/10/17 11:26 am):** Shortened original prereq statement but made it more understandable.

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Key: 4413  
[Preview Bridge](#)

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 03/17/17 9:32 am

Viewing: **CER ENG 6410 : Advanced Integrated Computational Materials Engineering**

File: 4414

Last edit: 04/10/17 11:30 am

Changes proposed by: smiller

Requested	Fall 2017
Effective Change Date	
Department	Materials Science & Engineering
Discipline	Ceramic Engineering (CER ENG)
Course Number	6410
Title	Advanced Integrated Computational Materials Engineering
Abbreviated Course Title	Advanced ICME

**Catalog Description**  
 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.

**Prerequisites**  
 "B" or better grade in Math 3304

**Field Trip Statement**

<b>Credit Hours</b>	LEC: 2	LAB: 1	IND: 0	RSD: 0	Total: 3
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**Required for Majors**  
 No

**Elective for Majors**  
 No

**Justification for new course:**  
 Graduate level course to accompany Cer Eng 4410.

**Semesters previously offered as an**  
 Spring semesters of 2013, 2014, 2015 as MSE 6001

### 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. Ishelton
11. Peoplesoft

### Approval Path

1. 03/17/17 10:15 am  
 mjokeefe:  
 Approved for RMATSENG Chair
2. 03/17/17 12:42 pm  
 Kristy Giacomelli (kristyg):  
 Approved for CCC Secretary
3. 04/10/17 11:30 am  
 sraper: Approved for Engineering DSCC Chair
4. 04/10/17 2:21 pm  
 Kristy Giacomelli (kristyg):  
 Approved for

experimental  
course

Pending CCC  
Agenda post

Co-Listed  
Courses:

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Course Reviewer **sraper (04/10/17 11:30 am):** Took out the word Graduate in course description. Left  
Comments "B" or better prereq as is, but would like to discuss if this is appropriate for a  
graduate level course. At ug level consensus is that it is not appropriate.

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Key: 4414  
[Preview Bridge](#)



# Course Inventory Change Request

Date Submitted: 03/23/17 12:15 pm

Viewing: **COMP SCI 6303 : Pervasive Computing**

File: 537.1

Last edit: 03/23/17 12:15 pm

Changes proposed by: tauritzd

Requested	Fall 2014
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	6303
Title	Pervasive Computing
Abbreviated Course Title	Pervasive Computing

**Catalog Description** Pervasive computing aims to seamlessly integrate computing with our everyday activities, so that people do not need to be aware of computing artifacts. This course will introduce various techniques needed to realize pervasive computing, such as position tracking and ad-hoc networking.

**Prerequisites** A "C" or better grade in **one of either** Comp Sci **4600, ~~4600~~ or Comp Sci 5600, or Comp Eng 5410.**

**Field Trip Statement**

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

**Required for Majors** No

**Elective for Majors** **Yes ~~No~~**

**Justification for change:** In the 3-digit course numbering system, the first prereq was Comp Sci 365 which was dual-mapped to Comp Sci 4600 and Comp Sci 5600, but the prereq was mapped to just Comp Sci 4600. This corrects that mapping by listing both of the 4-digit dual-mapped courses as prereqs.

**Semesters previously offered as an experimental**

## In Workflow

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

## Approval Path

1. 03/23/17 3:54 pm Sajal Das (sdas): Approved for RCOMPSCI Chair
2. 03/24/17 12:00 pm Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 2:38 pm sraper: Approved for Engineering DSCC Chair
4. 04/10/17 2:44 pm Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

course

Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 537  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/31/17 2:56 pm

Viewing: **COMP SCI 6600 : Formal Methods in Computer Security**

File: 1741.1

Last edit: 03/31/17 2:56 pm

Changes proposed by: tauritzd

Requested	<b>Spring 2018</b> <del>Fall 2014</del>
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	6600
Title	<b>Formal Methods in</b> Computer Security
Abbreviated Course Title	<b>Formal Methods in CmpSec</b> <del>Computer Security</del>

**Catalog Description**  
The course presents various vulnerabilities and threats to information in cyberspace and the principles and techniques for preventing and detecting threats, and recovering from attacks. The course deals with various **formal models aspects and layers** of **advanced information flow security. security. A major project will relate theory to practice. data-level, network-level, system-level, and application-level security.**

**Prerequisites**  
A "C" or better grade in both Comp Sci 3600 and Comp Sci 5200.

**Field Trip Statement**

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

**Required for Majors**  
No

**Elective for Majors**  
**Yes** ~~No~~

**Justification for change:**  
The course has been taught as a formal methods course since 2014, so the proposed title and description more accurately reflect the current content.

**Semesters previously offered as an experimental course**

## In Workflow

- 1. RCOMPSCI Chair**
- 2. CCC Secretary**
- 3. Engineering DSCC Chair**
- 4. Pending CCC Agenda post**
- 5. CCC Meeting Agenda**
- Campus Curricula Committee Chair
- FS Meeting Agenda
- Faculty Senate Chair
- Registrar
- Ishelton
- Peoplesoft

## Approval Path

- 03/31/17 3:30 pm  
Sajal Das (sdas):  
Approved for RCOMPSCI Chair
- 04/06/17 11:19 am  
Lahne Black (lahne): Approved for CCC Secretary
- 04/10/17 2:49 pm  
srafer: Approved for Engineering DSCC Chair
- 04/10/17 2:50 pm  
Kristy Giacomelli (kristyg):  
Approved for Pending CCC Agenda post

Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 1741

[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 04/05/17 2:15 pm

Viewing: **ELEC ENG 2800 : Electrical Circuits**

File: 2186.1

Last edit: 04/05/17 2:24 pm

Changes proposed by: martins

Programs referencing this course	<a href="#">AE ENG-BS: Aerospace Engineering BS</a> <a href="#">AP MATH-BS: Applied Mathematics BS</a> <a href="#">ENG MG-BS: Engineering Management BS</a> <a href="#">MC ENG-BS: Mechanical Engineering BS</a> <a href="#">MT ENG-BS: Metallurgical Engineering BS</a>
Other Courses referencing this course	In The Prerequisites: <a href="#">AERO ENG 4882 : Experimental Methods in Aerospace Engineering I</a>

Requested Effective Change Date: Fall **2017** ~~2014~~

Department: Electrical and Computer Engineering

Discipline: Electrical Engineering (ELEC ENG)

Course Number: 2800

Title: Electrical Circuits

Abbreviated Course Title: Electrical Circuits

Catalog Description: ~~Taught Alternating and direct current circuits taught~~ primarily as an **alternative a-c** course (**AC**) **circuits course** with **direct current (DC) circuits** ~~de~~ as special case. **Current Current**, voltage and power relations; complex **algebra**; ~~algebra, network theorems~~; voltage and power relations in polyphase **circuits with an emphasis on Transformers and Induction Machines.** ~~circuits~~. Not for electrical majors.

Prerequisites: Math 3304 or 3329; Physics 2135.

Field Trip Statement

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

Required for Majors: No

Elective for: No

## In Workflow

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

## Approval Path

1. 04/06/17 3:53 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 04/08/17 4:04 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/18/17 8:41 am  
srafer: Approved for Engineering DSCC Chair
4. 04/20/17 4:13 pm  
Lahne Black (lahne): Approved for Pending CCC Agenda post

## Majors

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Justification for change: To update the course description to better fit the course content.

Semesters previously offered as an experimental course

Co-Listed Courses:

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Course Reviewer Comments

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Key: 2186  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 04/05/17 1:28 pm

Viewing: **ELEC ENG 3340 : Basic Programmable Logic Controllers**

## ~~Controllers For Factory Automation~~

File: 90.1

Last edit: 04/05/17 1:28 pm

Changes proposed by: kte

Programs referencing this course	<a href="#">ARC ENG-BS: Architectural Engineering BS</a> <a href="#">AUTOENG-MI: Minor in Automation Engineering</a> <a href="#">EL ENG-BS: Electrical Engineering BS</a>
Other Courses referencing this course	<u>In The Prerequisites:</u> <a href="#">CHEM ENG 5190 : Plantwide Process Control</a> <a href="#">ELEC ENG 4380 : Practicum in Automation Engineering</a> <a href="#">ELEC ENG 5340 : Advanced PLC</a> <a href="#">ELEC ENG 5345 : PLC Motion Control</a> <a href="#">ELEC ENG 5350 : Plantwide Process Control</a>

Requested Effective Change Date	<b>Spring 2018</b> <del>Fall 2014</del>
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	3340
Title	<b>Basic Programmable Logic Controllers</b> <del>Controllers For Factory Automation</del>
Abbreviated Course Title	<b>Basic PLC</b> <del>Controllers/Factory Auto</del>

Catalog Description	Introduction to programmable <b>automation in manufacturing</b> , <del>automation</del> , programmable logic controller (PLC) hardware, programming languages and techniques, <b>PID</b> closed-loop <b>control</b> , <b>electrical code</b> . <del>strategies using PLC's, sensors, transducers</del> . Case studies. Laboratory <b>exercises</b> . <del>experiments</del> .
Prerequisites	<b>Preceded or accompanied by</b> Elec Eng 2120 <del>or Elec and Comp</del> Eng <b>2800</b> . <del>2210 each with a grade of "C" or better.</del>
Field Trip Statement	

Credit Hours	LEC: 2	LAB: 1	IND: 0	RSD: 0	Total: 3
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### In Workflow

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

### Approval Path

1. 04/06/17 3:54 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 04/08/17 4:04 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/18/17 8:41 am  
srafer: Approved for Engineering DSCC Chair
4. 04/20/17 4:13 pm  
Lahne Black (lahne): Approved for Pending CCC Agenda post

Required for  
Majors

No

Elective for  
Majors

Yes ~~No~~

Justification for  
change:

New title better describes course content. Revised description to reflect updated course content. Unnecessary prerequisite of Comp Eng 2210 deleted, circuits changed to a co-requisite as it is only needed for the electrical code material covered in the last few weeks of the semester. Co-requisite for non-Elec Eng students added as Elec Eng 3340 is required for the Automation Engineering minor, which is also for Chem Eng and Mech Eng students.

Semesters  
previously  
offered as an  
experimental  
course

Co-Listed  
Courses:

Course Reviewer  
Comments



# Course Inventory Change Request

## New Course Proposal

Date Submitted: 02/28/17 9:59 am

Viewing: **ELEC ENG 5325 : Applied Nonlinear Control**

File: 4403

Last edit: 02/28/17 9:59 am

Changes proposed by: martins

Requested	Spring 2018
Effective Change Date	
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	5325
Title	Applied Nonlinear Control
Abbreviated Course Title	App Nonlinear Control

Catalog Description	Review of State Variable Models, Nonlinear Model and Phenomena, Lyapunov Stability, Phase Plane Analysis, Feedback Linearization, Sliding Mode and Backstepping Control, and Control Applications				
Prerequisites	Elec Eng 3320 or graduate standing				
Field Trip Statement	N/A				
Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3
Required for Majors	No				
Elective for Majors	Yes				

Justification for new course: to expand our graduate control course offerings

Semesters previously offered as an experimental course: SP 2015 and SP 2016

Co-Listed

### In Workflow

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

### Approval Path

1. 02/28/17 5:33 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 03/01/17 8:06 am  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 03/14/17 2:54 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 2:22 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

Courses:

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Course Reviewer

Comments

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Key: 4403  
[Preview Bridge](#)

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 03/08/17 10:00 am

Viewing: **ENG MGT 6216 : Financial Data Analysis**

File: 4408

Last edit: 03/15/17 3:27 pm

Changes proposed by: cornss

Requested	Spring 2018
Effective Change Date	
Department	Engineering Management and Systems Engineering
Discipline	Engineering Management (ENG MGT)
Course Number	6216
Title	Financial Data Analysis
Abbreviated Course Title	Financial Data Analysis
Catalog Description	Statistical analysis of financial markets data (e.g., equity prices, exchange rates, and interest rates). The application of exploratory data analysis as well as more formal statistical methods such as regression, time series, principal component analysis (PCA), factor models, and Bayesian data analysis in modeling financial data will be covered.
Prerequisites	An undergraduate calculus based statistics course and one of Eng Mgt 6212, Sys Eng 6612, Eng Mgt 6213, or Sys Eng 6613.
Field Trip Statement	
Credit Hours	LEC: 3      LAB: 0      IND: 0      RSD: 0      Total: 3
Required for Majors	Yes
Elective for Majors	No
Justification for new course:	<p>Course will be added to the Financial Engineering Certificate as a required course.</p> <p>This course will be co-listed with Sys Eng 6616. Because this has been done in mid-process. We will have to manually add Sys Eng 6616 at end of process because it is not an existing course.</p>
Semesters	Spring 2016

### In Workflow

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

### Approval Path

1. 03/08/17 10:47 am  
Suzanna Long (longsuz):  
Approved for RENG MNGT Chair
2. 03/08/17 2:35 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 03/14/17 2:54 pm  
srafer: Approved for Engineering DSCC Chair
4. 03/15/17 3:27 pm  
Kristy Giacomelli (kristyg): Rollback to Engineering

previously  
offered as an  
experimental  
course

Co-Listed  
Courses:

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Course Reviewer **kristyg (03/15/17 3:27 pm):** Rollback: Rollback per email.  
Comments

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Key: 4408

DSCC Chair for  
Pending CCC  
Agenda post  
5. 04/10/17 2:57 pm  
sraper: Approved  
for Engineering  
DSCC Chair  
6. 04/10/17 3:01 pm  
Kristy Giacomelli  
(kristyg):  
Approved for  
Pending CCC  
Agenda post

[Preview Bridge](#)

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 04/11/17 2:52 pm

Viewing: **GEOLOGY 4002 : Internship**

File: 4423

Last edit: 04/19/17 11:35 am

Changes proposed by: jhogan

Requested	Fall 2017
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geology (GEOLOGY)
Course Number	4002
Title	Internship
Abbreviated Course Title	Internship

Catalog Description	Students will select, with the advice of their advisor, appropriate problems for investigation through practical application of fundamental geoscience principles. The problems selected must provide higher level experiential learning. Assessment is based upon the quality of written and oral presentations and supervisor's evaluation.				
Prerequisites	Prerequisite: Advisor's approval.				
Field Trip Statement					
Credit Hours	LEC: 0	LAB: 0	IND: 3	RSD: 0	Total: 3
Required for Majors	No				
Elective for Majors	Yes				

Justification for new course:

1) This is an approved course in Geological Engineering. We would like to offer the same opportunity to Geology students. This course could be co-listed if necessary (see below). We prefer a higher level course number to reflect students will need a certain amount of course work completed prior to setting up an independent study.

2) We have new MOU's with the Missouri Geological Survey and the National Forest

### In Workflow

1. **RGEOSENG 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. Ishelton
11. Peoplesoft

### Approval Path

1. 04/11/17 3:06 pm  
Francisca Oboh-Ikuenobe (ikuenobe):  
Approved for RGEOSENG Chair
2. 04/13/17 2:31 pm  
Lahne Black (lahne): Approved for CCC Secretary
3. 04/19/17 11:35 am  
Ilene Morgan (imorgan):  
Approved for Sciences DSCC Chair
4. 04/20/17 4:12 pm  
Lahne Black (lahne): Approved

for Pending CCC  
Agenda post

Survey here in Rolla. This course will provide practical experiential learning opportunities for our students during the fall, spring, and summer semesters without completely disrupting their progress to completing their degree. This is not the same as "Co-Op" but will provide the student with internship experience.

3) Presently there is collaborative research between our agencies and this would provide students and opportunity to have their contributions formally assessed and recognized on their transcripts.

Semesters previously offered as an experimental course

This course is modeled after courses in our department successfully offered through the Geological Engineering program. We are therefore, respectfully requesting, that this course be exempted from the "experimental" course procedure.

Co-Listed Courses:

GEO ENG 2002 - Cooperative Work Training

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Course Reviewer **imorgan (04/13/17 2:37 pm):** Changed effective term to FS 2017.

Comments **imorgan (04/19/17 11:35 am):** It might be easier to approve this without the co-list and add the co-list later if appropriate.

Key: 4423  
[Preview Bridge](#)

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 04/11/17 3:01 pm

Viewing: **GEOLOGY 5085 : Internship**

File: 4424

Last edit: 04/19/17 11:36 am

Changes proposed by: jhogan

Requested	Fall 2017
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geology (GEOLOGY)
Course Number	5085
Title	Internship
Abbreviated Course Title	Internship

Catalog Description	Students will select, with their committee's advice, problems for investigation and preparation of a graduate research proposal. Problems must provide higher level experiential learning consistent with a graduate degree in geology. Assessment is based upon the quality of written and oral presentations and supervisor's evaluation. Repeatable for credit.				
Prerequisites	Graduate Standing.				
Field Trip Statement					
Credit Hours	LEC: 0	LAB: 0	IND: 3	RSD: 0	Total: 3
Required for Majors	No				
Elective for Majors	No				

Justification for new course:	<p>1) This is an approved course in Geological Engineering. We would like to offer the same opportunity to Geology graduate students. This course could be co-listed if necessary.</p> <p>2) We have new MOU's with the Missouri Geological Survey and the National Forest Survey here in Rolla. This course will provide opportunities for our graduate students</p>
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### In Workflow

1. **RGEOSENG 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. Ishelton
11. Peoplesoft

### Approval Path

1. 04/11/17 3:08 pm  
Francisca Oboh-Ikuenobe (ikuenobe):  
Approved for RGEOSENG Chair
2. 04/13/17 2:32 pm  
Lahne Black (lahne): Approved for CCC Secretary
3. 04/19/17 11:36 am  
Ilene Morgan (imorgan):  
Approved for Sciences DSCC Chair
4. 04/20/17 4:12 pm  
Lahne Black (lahne): Approved

to explore research opportunities that are of scientific and/or practical interest to faculty and to government agencies (DNR, NFS, USGS).

for Pending CCC  
Agenda post

3) Presently there is collaborative research between our agencies and this would provide students and opportunity to have their contributions formally assessed and recognized on their transcripts.

Semesters previously offered as an experimental course

This course is modeled after courses in our department successfully offered through the Geological Engineering program. We are therefore, respectfully requesting, that this course be exempted from the "experimental" course procedure.

Co-Listed Courses:

GEO ENG 5085 - Internship

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Course Reviewer **imorgan (04/13/17 2:38 pm)**: Changed effective term to FS 2017.

Comments **imorgan (04/19/17 11:36 am)**: It might be easier to approve this without the co-list and add the co-list later if appropriate.



# Course Inventory Change Request

## New Course Proposal

Date Submitted: 03/16/17 3:25 pm

Viewing: **GEOLOGY 5681 : Lidar Principles and Application**

File: 4415

Last edit: 04/19/17 11:40 am

Changes proposed by: liukh

Requested	Fall 2017
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geology (GEOLOGY)
Course Number	5681
Title	Lidar Principles and Application
Abbreviated Course Title	Lidar Princ App

Catalog Description	This course will provide a comprehensive understanding of light detection and ranging (lidar) technology as it has been developed for commercial use; the various methods of deploying the technology for collection of data for mapping, engineering and science, and application of the data using specialized software for editing and processing point cloud data.				
Prerequisites	GIS or equivalent course or experience.				
Field Trip Statement					
Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3
Required for Majors	No				
Elective for Majors	Yes				

Justification for new course: Lidar is a newer technology that has been developed and commercialized over the last 15 years for the collection of high-resolution elevation data. These data are the primary source elevation data for the U.S. Geological Survey's 3D Elevation Program with a goal to acquire lidar for the entire conterminous U.S. in eight years. Lidar point cloud data obtained through this program are available online at no charge to the public. Furthermore, non-governmental industries have embraced this

### In Workflow

1. **RGEOSENG 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. Ishelton
11. Peoplesoft

### Approval Path

1. 03/16/17 4:47 pm  
Francisca Oboh-Ikuenobe (ikuenobe):  
Approved for RGEOSENG Chair
2. 03/17/17 12:42 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 04/19/17 11:41 am  
Ilene Morgan (imorgan):  
Approved for Sciences DSCC Chair
4. 04/20/17 4:12 pm

technology and it is being applied in mining, civil engineering, geologic engineering, infrastructure management, and geologic mapping. Since lidar has wide ranging application in both science and engineering, it is necessary that students have opportunities for training on the value and limitation of this new technology.

Lahne Black  
(lahne): Approved  
for Pending CCC  
Agenda post

Semesters previously offered as an experimental course  
Offered as experimental (5001)course:  
Fall 2015—10 students, Geology and Geologic Engineering majors  
Fall 2016—12 students, Geology, Geologic Engineering, and Mine Engineering majors

Co-Listed Courses:

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Course Reviewer Comments **imorgan (04/19/17 11:40 am):** The prerequisite in FS 2016 was "Senior or graduate standing".

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Key: 4415  
[Preview Bridge](#)

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 04/11/17 3:05 pm

Viewing: **GEOLOGY 6085 : Internship**

File: 4425

Last edit: 04/19/17 11:34 am

Changes proposed by: jhogan

Requested	Fall 2017
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geology (GEOLOGY)
Course Number	6085
Title	Internship
Abbreviated Course Title	Internship

Catalog Description	Students will select, with their committee's advice, problems for investigation and preparation of a graduate research proposal. Problems must provide higher level experiential learning consistent with a graduate degree in geology. Assessment is based upon the quality of written and oral presentations and supervisor's evaluation. Repeatable for credit.				
Prerequisites	Graduate standing.				
Field Trip Statement					
Credit Hours	LEC: 0	LAB: 0	IND: 3	RSD: 0	Total: 3
Required for Majors	No				
Elective for Majors	No				

Justification for new course:	<p>1) This is an approved course in Geological Engineering. We would like to offer the same opportunity to Geology graduate students. This course could be co-listed if necessary.</p> <p>2) We have new MOU's with the Missouri Geological Survey and the National Forest Survey here in Rolla. This course will provide opportunities for our students during</p>
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### In Workflow

1. **RGEOSENG 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. Ishelton
11. Peoplesoft

### Approval Path

1. 04/11/17 3:08 pm  
Francisca Oboh-Ikuenobe (ikuenobe):  
Approved for RGEOSENG Chair
2. 04/13/17 2:32 pm  
Lahne Black (lahne): Approved for CCC Secretary
3. 04/19/17 11:35 am  
Ilene Morgan (imorgan):  
Approved for Sciences DSCC Chair
4. 04/20/17 4:12 pm  
Lahne Black (lahne): Approved

the fall, spring, and summer semesters, to explore opportunities for research projects with local government agencies without completely disrupting their progress to completing their degree.

for Pending CCC  
Agenda post

3) Presently there is collaborative research between our agencies and this would provide students and opportunity to have their contributions formally assessed and recognized on their transcripts.

Semesters previously offered as an experimental course

This course is modeled after courses in our department successfully offered through the Geological Engineering program. We are therefore, respectfully requesting, that this course be exempted from the "experimental" course procedure.

Co-Listed Courses:

GEO ENG 6085 - Internship

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Course Reviewer **imorgan (04/13/17 2:50 pm):** Changed effective date to FS 2017.

Comments **imorgan (04/19/17 11:34 am):** It might be easier to approve this without the co-list and add the co-list later if appropriate.

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Key: 4425  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 04/11/17 3:15 pm

Viewing: **GEOLOGY 6651** ~~5651~~: Granite and Rhyolite Petrogenesis

File: 385.1

Last edit: 04/13/17 3:04 pm

Changes proposed by: jhogan

Requested Fall ~~2014~~ **2017**

Effective Change

Date

Department Geosciences and Geological and Petroleum Engineering

Discipline Geology (GEOLOGY)

Course Number ~~5651~~ **6651**

Title Granite and Rhyolite Petrogenesis

Abbreviated Course Title Granite Petrogenesis

Catalog Description The origin of granites and rhyolites with respect to extreme fractionation, crustal anatexis, magma mixing, and tectonic setting will be explored through critical reading of the literature and examination of hand samples and thin sections from classic geologic terranes.

Prerequisites Geology 2620.

Field Trip Statement A research paper is required as well as a field trip at the student's expense.

Credit Hours LEC: 3 LAB: 1 IND: 0 RSD: 0 Total: 4

Required for Majors No

Elective for Majors No

Justification for change: I am requesting that this course number be changed to correct what was likely a typographical error. It was originally intended to be a 6000 level course. No other changes are being proposed.

Thank you.

Semesters previously offered as an

## In Workflow

1. **RGEOSENG 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. Ishelton
11. Peoplesoft

## Approval Path

1. 04/11/17 3:18 pm Francisca Oboh-Ikuenobe (ikuenobe): Approved for RGEOSENG Chair
2. 04/13/17 2:32 pm Lahne Black (lahne): Approved for CCC Secretary
3. 04/19/17 11:33 am Ilene Morgan (imorgan): Approved for Sciences DSCC Chair
4. 04/20/17 4:12 pm Lahne Black (lahne): Approved

experimental  
course

Co-Listed  
Courses:

for Pending CCC  
Agenda post

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Course Reviewer **imorgan (04/13/17 3:04 pm)**: Changed effective date to FS 2017.

Comments

Key: 385  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 04/10/17 4:12 pm

Viewing: **MECH ENG 5212 : Introduction to Finite Element Analysis**

File: 1245.3

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

Last edit: 04/10/17 4:12 pm

Changes proposed by: nisbett

Catalog Pages referencing this course	<a href="#">Mechanical Engineering</a>
Programs referencing this course	<a href="#">AP MATH-BS: Applied Mathematics BS</a> <a href="#">MC ENG-BS: Mechanical Engineering BS</a> <a href="#">MT ENG-BS: Metallurgical Engineering BS</a>
Other Courses referencing this course	<u>In The Catalog Description:</u> <a href="#">AERO ENG 5212 : Introduction to Finite Element Analysis</a> <u>In The Prerequisites:</u> <a href="#">AERO ENG 6212 : Advanced Finite Element Analysis</a> <a href="#">MECH ENG 6212 : Advanced Finite Element Analysis</a>

Requested Effective Change Date	Fall <del>2014</del> <b>2017</b>
Department	Mechanical & Aerospace Engineering
Discipline	Mechanical Engineering (MECH ENG)
Course Number	5212
Title	Introduction to Finite Element Analysis
Abbreviated Course Title	Intro Finite Element Analysis

Catalog Description	Variational formulation of the governing equations. Finite element model, interpolation functions, numerical integration, assembly of elements and solution procedures. Applications to solid mechanics, fluid mechanics and heat transfer problems. Two-dimensional problems. Computer implementation and use of commercial finite element codes.
Prerequisites	<b>Math 3304; senior or graduate standing</b> <del>Mech-Eng-3708 or Aero-Eng-4253 or consent of instructor for majors that do not require either of these courses, or graduate standing.</del>

## In Workflow

1. **RMECHENG 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. Ishelton
11. Peoplesoft

## Approval Path

1. 04/10/17 4:23 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/10/17 4:25 pm Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/18/17 8:43 am sraper: Approved for Engineering DSCC Chair
4. 04/20/17 4:12 pm Lahne Black (lahne): Approved for Pending CCC Agenda post

Field Trip  
Statement

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

Required for  
Majors              No

Elective for  
Majors              **Yes** ~~No~~

History

1. Apr 25, 2014 by  
lahne (1245.1)

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Justification for  
change:              Broadening the prerequisites to encourage enrollment from multiple disciplines,  
while still requiring appropriate background and maturity.

Semesters  
previously  
offered as an  
experimental  
course

Co-Listed  
Courses:              AERO ENG 5212 - Introduction to Finite Element Analysis

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Course Reviewer  
Comments

Key: 1245  
[Preview Bridge](#)



# Course Inventory Change Request

Date Submitted: 03/10/17 10:23 am

Viewing: **MIN ENG 2126 : Introduction To Mining Safety**

File: 2520.1

Last edit: 04/10/17 3:00 pm

Changes proposed by: cifarellit

Catalog Pages referencing this course	<a href="#">Freshman Engineering Program</a>
Programs referencing this course	<a href="#">MI ENG-BS: Mining Engineering BS</a>
Other Courses referencing this course	<p>In The Prerequisites:</p> <p><a href="#">EXP ENG 5612 : Principles Of Explosives Engineering</a></p> <p><a href="#">MIN ENG 3002 : Mine Rescue</a></p> <p><a href="#">MIN ENG 4122 : Advanced Mine Health and Safety</a></p> <p><a href="#">MIN ENG 5612 : Principles of Explosives Engineering</a></p>

Requested Effective Change Date	Fall <del>2017</del> <b>2014</b>
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	2126
Title	Introduction To Mining Safety
Abbreviated Course Title	Intro To Mining Safety

Catalog Description **Safety** ~~Instruction in the safety~~ aspects of mining in accordance with the MSHA Training Program required for all new miners. Subjects include self-rescue and respiratory protection, ground control, hazard recognition, mine gases, and legal aspects associated with mining.

Prerequisites ~~Accompanied or preceded by Min-Eng 1912.~~

Field Trip Statement

Credit Hours      LEC: 0              LAB: 1              IND: 0              RSD: 0              Total: 1

## In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

1. 03/13/17 10:42 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
2. 03/15/17 3:25 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 3:00 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 3:02 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC

Required for  
Majors

Yes ~~No~~

Agenda post

Elective for  
Majors

No

Justification for  
change:

Change in material and content of the course to align more with the course description. pre-requisite was not needed.

Semesters  
previously  
offered as an  
experimental  
course

**Slightly modified course description and checked required for majors.**

Co-Listed  
Courses:

Course Reviewer  
Comments

Key: 2520  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/10/17 10:26 am

Viewing: **MIN ENG 2412 ~~3412~~: Principles Of Mineral Processing**

File: 2268.1

Last edit: 04/10/17 3:03 pm

Changes proposed by: cifarellit

Programs referencing this course	<a href="#">MI ENG-BS: Mining Engineering BS</a>				
Requested Effective Change Date	Fall <b>2017</b> <del>2014</del>				
Department	Mining & Nuclear Engineering				
Discipline	Mining Engineering (MIN ENG)				
Course Number	<b>2412</b> <del>3412</del>				
Title	Principles Of Mineral Processing				
Abbreviated Course Title	Prin Of Mineral Proc				
Catalog Description	Introduction to the principles of mineral processing including mineral resources; particle comminution, classification, separation and dewatering; flowsheet and equipment design.				
Prerequisites					
Field Trip Statement					
Credit Hours	LEC: 2	LAB: 1	IND: 0	RSD: 0	Total: 3
Required for Majors	<b>Yes</b> <del>No</del>				
Elective for Majors	No				
Justification for change:	Introduce an essential mining engineering course in the sophomore year so students can build on the knowledge later. Change in material and content of the course to align more with the course description and curriculum needs.				
Semesters previously					

## In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

1. 03/13/17 10:42 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
2. 03/15/17 3:25 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 3:03 pm  
srapper: Approved for Engineering DSCC Chair
4. 04/10/17 3:22 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC

offered as an  
experimental  
course

Agenda post

Co-Listed  
Courses:

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Course Reviewer **sraper (04/10/17 3:03 pm)**: Checked required for majors box.

Comments

Key: 2268  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/10/17 10:29 am

Viewing: **MIN ENG 2925 : Surveying For Mineral Engineers**

File: 1534.1

Last edit: 03/10/17 10:29 am

Changes proposed by: cifarellit

Programs referencing this course	<a href="#">MI ENG-BS: Mining Engineering BS</a>				
Requested Effective Change Date	Fall <del>2017</del> 2014				
Department	Mining & Nuclear Engineering				
Discipline	Mining Engineering (MIN ENG)				
Course Number	2925				
Title	Surveying For Mineral Engineers				
Abbreviated Course Title	Survey For Mineral Engrs				
Catalog Description	Principles of surface and underground survey practice utilizing total station, engineer's level and GPS. Traversing and details, note taking and computations, balancing surveys and error analysis, staking-out new points, and map construction with AutoCAD.				
Prerequisites	<del>Math 1160</del> , accompanied or preceded by Min Eng 1912.				
Field Trip Statement					
Credit Hours	LEC: 0	LAB: 2	IND: 0	RSD: 0	Total: 2
Required for Majors	No				
Elective for Majors	No				
Justification for change:	Change in material and content of the course to align more with the course description, pre-req not needed				
Semesters previously					

## In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

1. 03/13/17 10:42 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
2. 03/15/17 3:25 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/18/17 8:44 am  
srafer: Approved for Engineering DSCC Chair
4. 04/20/17 4:12 pm  
Lahne Black (lahne): Approved for Pending CCC Agenda post

offered as an  
experimental  
course

Co-Listed  
Courses:

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Course Reviewer  
Comments

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Key: 1534  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/02/17 11:22 am

Viewing: **MIN ENG 3913 : Mineral Identification and Exploration**

## ~~Mining Exploration~~

File: 41.3

Last approved: 04/25/14 3:06 pm

Last edit: 04/10/17 3:16 pm

Changes proposed by: cifarellit

Programs referencing this course	<a href="#">GE ENG-BS: Geological Engineering BS</a> <a href="#">GEOL-MI: Geology Minor</a> <a href="#">MI ENG-BS: Mining Engineering BS</a> <a href="#">MI ENG-MI: Mining Engineering Minor</a>
Other Courses referencing this course	<u>In The Prerequisites:</u> <a href="#">MIN ENG 4932 : Underground Mining Methods And Equipment</a>

Requested Effective Change Date	Fall <del>2017</del> <b>2014</b>
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	3913
Title	<b>Mineral Identification and Exploration</b> <del>Mining Exploration</del>
Abbreviated Course Title	<b>Mineral ID &amp; Exploration</b> <del>Mining Exploration</del>

Catalog Description: **Characterization** ~~Classification~~ of mineral deposits. Ore body definition. **Mineral Exploration techniques.** ~~Geology, geophysics, geochemistry, geobotany, and drilling in mineral exploration.~~ **Sample Sampling** methods, errors and mitigation. **Rock Identification.** ~~Resources/Reserves classification. Proven, probable and possible resources/reserves. Reserve estimation project.~~

Prerequisites: **Chem 1310 and Chem 1319 or Chem 1351; and either Geo Eng 1150 or Geology 1110.** ~~Geology 2611.~~

Field Trip Statement

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

Required for: Yes

### In Workflow

- 1. RMINNUCL Chair**
- 2. CCC Secretary**
- 3. Engineering DSCC Chair**
- 4. Pending CCC Agenda post**
- 5. CCC Meeting Agenda**
- Campus Curricula Committee Chair
- FS Meeting Agenda
- Faculty Senate Chair
- Registrar
- Ishelton
- Peoplesoft

### Approval Path

- 03/13/17 10:40 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
- 03/15/17 3:25 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
- 04/10/17 3:16 pm  
srapper: Approved for Engineering DSCC Chair
- 04/10/17 3:22 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC

Majors		Agenda post
Elective for Majors	No	
Justification for change:	Change in title, material and content of the course to align more with the course description.	History 1. Apr 25, 2014 by lahne (41.1)
Semesters previously offered as an experimental course		
Co-Listed Courses:		
Course Reviewer Comments	<b>sraper (04/10/17 3:16 pm):</b> Modified prereqs to remove ambiguity. Some DSCC committee members indicate semi colons would be better. Please look at this at CCC meeting.	

Key: 41  
[Preview Bridge](#)



# Course Inventory Change Request

Date Submitted: 03/02/17 11:03 am

Viewing: **MIN ENG 4096 : Computer Aided Mine Design Project I**

File: 1944.6

Last approved: 02/09/15 3:18 am

Last edit: 03/02/17 11:03 am

Changes proposed by: cifarellit

Programs referencing this course	<a href="#">MI ENG-BS: Mining Engineering BS</a>
Other Courses referencing this course	In The Prerequisites: <a href="#">MIN ENG 4097 : Capstone Design Project</a>

Requested Effective Change Date	Fall <del>2017</del> <b>2015</b>
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	4096
Title	<b>Computer Aided</b> Mine Design <del>Project I</del>
Abbreviated Course Title	<b>COMP AID MIN DESIGN</b> <del>Mine Design-Project I</del>

**Catalog Description** Mine planning and design using commercial software. Orebody description. Surface mining: geometric design, pit limits, and production planning. Underground mining: development planning, opening and support design, ventilation and production planning. Group projects with real-world mining data. Preparation for capstone design project.

**Prerequisites** Min Eng 4522, Min Eng 4932 and Min Eng 4933.

**Field Trip Statement**

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

**Required for Majors** Yes

**Elective for** No

## In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

1. 03/13/17 10:38 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
2. 03/15/17 3:25 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 3:34 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 3:44 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC

Majors	Agenda post
<p>Justification for change: Change in title, material, and content of the course to align more with the course description.</p> <p>Semesters previously offered as an experimental course</p> <p>Co-Listed Courses:</p>	<p>History</p> <ol style="list-style-type: none"><li>1. May 2, 2014 by lahne (1944.1)</li><li>2. Feb 9, 2015 by cifarellit (1944.3)</li></ol>
<p>Course Reviewer Comments</p>	

Key: 1944  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/02/17 11:16 am

Viewing: **MIN ENG 4097 : Capstone Mine-Design Project II**

File: 1128.7

Last approved: 02/09/15 3:19 am

Last edit: 03/13/17 10:39 am

Changes proposed by: cifarellit

Programs  
referencing this  
course

[MI ENG-BS: Mining Engineering BS](#)

Requested  
Effective Change  
Date

Fall **2017 2015**

Department

Mining & Nuclear Engineering

Discipline

Mining Engineering (MIN ENG)

Course Number

4097

Title

**Capstone Mine-Design Project II**

Abbreviated  
Course Title

**Capstone Mine-Design  
Project II**

Catalog  
Description

Capstone project with written and oral presentations. Includes mine design and optimization, production plan, equipment and flowsheet design based on geology, resources/reserves, geotechnics, hydrology and hydro-geology. Project also incorporates markets, environmental and permitting, mine-mill organization, support facilities, economic and risk analyses.

Prerequisites

**Min Eng 4096** ~~Min Eng 4096 and completion of 110 hours in the Mining Engineering Curriculum.~~

Field Trip  
Statement

Credit Hours

LEC: 1      LAB: 3      IND: 0      RSD: 0      Total: 4

Required for  
Majors

Yes

Elective for  
Majors

No

Justification for  
change:

Change in title, material, and content of the course to align more with the course description.

## In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

1. 03/13/17 10:39  
am  
Braden lusk  
(blusk): Approved  
for RMINNUCL  
Chair
2. 03/15/17 3:26 pm  
Kristy Giacomelli  
(kristyg):  
Approved for CCC  
Secretary
3. 04/10/17 3:35 pm  
srapper: Approved  
for Engineering  
DSCC Chair
4. 04/10/17 3:44 pm  
Kristy Giacomelli  
(kristyg):  
Approved for  
Pending CCC

Semesters  
previously  
offered as an  
experimental  
course  
Co-Listed  
Courses:

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Agenda post

### History

1. Apr 25, 2014 by lahne (1128.1)
2. Feb 9, 2015 by cifarellit (1128.3)

Course Reviewer  
Comments

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Key: 1128  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/02/17 11:28 am

Viewing: **MIN ENG 4113 : Mine Atmosphere Control**

File: 2260.5

Last approved: 02/09/15 3:18 am

Last edit: 03/13/17 10:41 am

Changes proposed by: cifarellit

Programs  
referencing this  
course

[MI ENG-BS: Mining Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:  
[MIN ENG 6133 : Mine Atmospheric Control II](#)

Requested  
Effective Change  
Date

Fall ~~2017~~ **2015**

Department

Mining & Nuclear Engineering

Discipline

Mining Engineering (MIN ENG)

Course Number

4113

Title

Mine Atmosphere Control

Abbreviated  
Course Title

Mine Atmosphere Control

Catalog  
Description

Fundamentals of mine ventilation, including the principles of airflow, control of gases, dust, and temperature, methane drainage, mine fans, network theory, computer network simulation, and economics of airflow, with emphasis on analysis, systems design and practical application.

Prerequisites

**Mech Eng 2527** ~~Chem 3410~~ and Civ **Eng 3330** or Nuc **Eng 3221** ~~Eng 3330~~.

Field Trip  
Statement

Credit Hours

LEC: 2      LAB: 1      IND: 0      RSD: 0      Total: 3

Required for  
Majors

Yes

Elective for  
Majors

No

## In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

1. 03/13/17 10:41 am  
Braden lusk  
(blusk): Approved for RMINNUCL Chair
2. 03/15/17 3:26 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 04/10/17 3:35 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 3:44 pm  
Kristy Giacomelli (kristyg):  
Approved for Pending CCC

Justification for  
change:

Change in pre-reqs to align more with the course material and content.

Agenda post

Semesters  
previously  
offered as an  
experimental  
course

History

1. Feb 9, 2015 by  
cifarellit (2260.1)

Co-Listed  
Courses:

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Course Reviewer  
Comments

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Key: 2260  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/21/17 2:57 pm

Viewing: **MIN ENG 4512 : Mine Management**

File: 1302.5

Last approved: 05/06/16 3:33 am

Last edit: 04/10/17 3:37 pm

Changes proposed by: cifarellit

Programs  
referencing this  
course

[MI ENG-BS: Mining Engineering BS](#)

Other Courses  
referencing this  
course

In The Catalog Description:  
[ECON 4512 : Mine Management](#)

Requested  
Effective Change  
Date

Fall ~~2017~~ **2015**

Department

Mining & Nuclear Engineering

Discipline

Mining Engineering (MIN ENG)

Course Number

4512

Title

Mine Management

Abbreviated  
Course Title

Mine Management

Catalog  
Description

Theory and practice of mine management, including basic managerial functions, management theories, communication skills, motivation, leadership, organization, maintenance management, managerial decision making, cost control, labor relations, government relations, ethics and risks management with emphasis in presentation skills.

Prerequisites

Completion of ~~50~~ **100** credits in **toward** Mining Engineering **degree**. ~~curriculum~~.

Field Trip  
Statement

Credit Hours

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

Required for  
Majors

Yes

Elective for

No

## In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

1. 03/21/17 3:00 pm  
Braden lusk  
(blusk): Approved  
for RMINNUCL  
Chair
2. 03/24/17 12:00  
pm  
Kristy Giacomelli  
(kristyg):  
Approved for CCC  
Secretary
3. 04/10/17 3:37 pm  
srafer: Approved  
for Engineering  
DSCC Chair
4. 04/10/17 3:44 pm  
Kristy Giacomelli  
(kristyg):  
Approved for  
Pending CCC

Majors	Agenda post	
Justification for change:	moved course to Junior year 100 credits is too high of a requirement. reduce ch requirement to enable students to enroll at the proper time. The course does require a basic knowledge of mining and mining technology, but does not require specific courses as prerequisites.	<b>History</b> 1. May 6, 2016 by cifarellit (1302.1)
Semesters previously offered as an experimental course		
Co-Listed Courses:	ECON 4512 - Mine Management	
Course Reviewer Comments	<b>sraper (04/10/17 3:37 pm):</b> Changed effective date and reworted prereq.	

Key: 1302  
[Preview Bridge](#)



# Course Inventory Change Request

Date Submitted: 03/10/17 11:04 am

Viewing: **MIN ENG 4522 : Ore Reserve Analysis And Geostatistics**

File: 1726.1

Last edit: 04/10/17 3:38 pm

Changes proposed by: cifarellit

Programs referencing this course	<a href="#">GEOL-MI: Geology Minor</a> <a href="#">MI ENG-BS: Mining Engineering BS</a>
Other Courses referencing this course	<u>In The Prerequisites:</u> <a href="#">MIN ENG 4096 : Computer Aided Mine Design</a>

Requested Effective Change Date	Fall <del>2017</del> <b>2014</b>
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	4522
Title	Ore Reserve Analysis And Geostatistics
Abbreviated Course Title	Ore Resrve Anlys&Geostat

Catalog Description	An introduction to principles of geostatistics, theory of spatially correlated random variables, variance and co-variances and their application on the evaluation of mineral resources, ore reserve estimation, strategic exploration, and production planning. Real case studies from mining industry will be presented.				
Prerequisites	<del>Math 3304</del> , Stat <b>3113</b> or Stat <b>3115</b> <del>3113</del> .				
Field Trip Statement					
Credit Hours	LEC: 2	LAB: 1	IND: 0	RSD: 0	Total: 3
Required for Majors	<b>Yes</b> <del>No</del>				
Elective for Majors	No				
Justification for	Change in pre-reqs of the course to align more with the course description				

## In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

1. 03/13/17 10:47 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
2. 03/15/17 3:26 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 3:38 pm  
srapper: Approved for Engineering DSCC Chair
4. 04/10/17 3:44 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC

change:

Agenda post

Semesters

previously

offered as an

experimental

course

Co-Listed

Courses:

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Course Reviewer **sraper (04/10/17 3:38 pm):** Changed to required for majors.

Comments

Key: 1726

[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/02/17 11:32 am

Viewing: **MIN ENG 4912 : Mine Power And Drainage**

File: 1145.4

Last approved: 02/09/15 3:18 am

Last edit: 03/13/17 10:47 am

Changes proposed by: cifarellit

Programs  
referencing this  
course

[MI ENG-BS: Mining Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[MIN ENG 4322 : Coal Mine Development And Production](#)

Requested  
Effective Change  
Date

Fall ~~2017~~ **2015**

Department

Mining & Nuclear Engineering

Discipline

Mining Engineering (MIN ENG)

Course Number

4912

Title

Mine Power And Drainage

Abbreviated  
Course Title

Mine Power And Drainage

Catalog  
Description

Engineering principles of mine power distribution and application and mine dewatering. Basics of electrical circuits, AC/DC power, transformers, electric meters, power distribution, power management. Hydraulic power systems. Compressed air in mines. Mine dewatering. Controlling water inflow. Dewatering wells. Water pumping and pumping systems.

Prerequisites

**Mech Eng 2527** ~~Chem 3410~~ and Civ **Eng 3330** or Nuc **Eng 3221** ~~Eng 3330~~.

Field Trip  
Statement

Field trip required.

Credit Hours

LEC: 2

LAB: 1

IND: 0

RSD: 0

Total: 3

Required for  
Majors

Yes

Elective for

No

In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

Approval Path

1. 03/13/17 10:48 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
2. 03/15/17 3:26 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 3:38 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 3:44 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC

Majors

Agenda post

Justification for change: Change in pre-reqs of the course to align more with the course content....

Semesters previously offered as an experimental course

Co-Listed Courses:

History

1. Feb 9, 2015 by cifarellit (1145.1)

Course Reviewer Comments

Key: 1145  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/10/17 10:50 am

Viewing: **MIN ENG 4932 : Underground Mining Methods And Equipment**

File: 1524.1

Last edit: 04/10/17 3:39 pm

Changes proposed by: cifarellit

Programs referencing this course	<a href="#">MI ENG-BS: Mining Engineering BS</a> <a href="#">MI ENG-MI: Mining Engineering Minor</a>
Other Courses referencing this course	In The Prerequisites: <a href="#">MIN ENG 4096 : Computer Aided Mine Design</a> <a href="#">MIN ENG 4922 : Tunneling &amp; Underground Construction Techniques</a> <a href="#">MIN ENG 6932 : Advanced Mining Systems</a> <a href="#">MIN ENG 6935 : Underground Mine Design</a>

Requested Effective Change Date	Fall <del>2014</del> <b>2017</b>
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	4932
Title	Underground Mining Methods And Equipment
Abbreviated Course Title	Ungrnd Min Meth & Equip

Catalog Description	Principles of planning, constructing, and operating economically viable underground mines. Cost effective mining methods: room-and-pillar, sublevel open stoping, VCR, shrinkage, sublevel caving, cut-and-fill, block caving, longwall. Selection of equipment for underground mining operations. Optimization of mine performance.				
Prerequisites	<b>Preceded or accompanied by</b> Min Eng <b>3913. 2924, Min-Eng-3512; coreq. Min-Eng 3913; Min-Eng-4823.</b>				
Field Trip Statement	Field Trip Required.				
Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3
Required for	<b>Yes</b> <del>No</del>				

## In Workflow

- 1. RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

- 03/13/17 11:00 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
- 03/15/17 3:26 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
- 04/10/17 3:39 pm  
srafer: Approved for Engineering DSCC Chair
- 04/10/17 3:44 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC

Majors

Agenda post

Elective for  
Majors No

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Justification for  
change: Change in material and content of the course to align more with the course  
description, pre-reqs removed and one co-req removed to align more with teaching  
material.

Semesters  
previously  
offered as an  
experimental  
course

Co-Listed  
Courses:

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Course Reviewer  
Comments **sraper (04/10/17 3:39 pm):** Changed to required for major and modified prereq  
statement.

Key: 1524  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/10/17 11:06 am

Viewing: **MIN ENG 4933 : Surface Mining Methods And Equipment**

File: 682.1

Last edit: 04/10/17 3:41 pm

Changes proposed by: cifarellit

Programs referencing this course	<a href="#">MI ENG-BS: Mining Engineering BS</a> <a href="#">MI ENG-MI: Mining Engineering Minor</a>
Other Courses referencing this course	<u>In The Prerequisites:</u> <a href="#">GEO ENG 4276 : Environmental Aspects Of Mining</a> <a href="#">MIN ENG 4096 : Computer Aided Mine Design</a> <a href="#">MIN ENG 4742 : Environmental Aspects Of Mining</a> <a href="#">MIN ENG 5933 : Advanced Surface Mining Methods</a> <a href="#">MIN ENG 6932 : Advanced Mining Systems</a> <a href="#">MIN ENG 6936 : Surface Mine Design</a>

Requested Effective Change Date	Fall <b>2017</b> <del>2014</del>
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	4933
Title	Surface Mining Methods And Equipment
Abbreviated Course Title	Surfce Min Meth & Equip

Catalog Description: Principles of planning, constructing, and operating economically viable surface mines. Cost effective mining methods: placer mining, strip mining, open pit mining, quarrying. Selection of equipment for surface mining operations. Optimization of mine performance.

Prerequisites: Min Eng 3912; Min Eng ~~2914~~; ~~Min Eng 3512~~; **preceded or accompanied by Min Eng 4823. coreq- Min Eng 4823.**

Field Trip Statement: Field trip required.

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

Required for: **Yes** ~~No~~

## In Workflow

- 1. RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

- 03/13/17 10:48 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
- 03/15/17 3:26 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
- 04/10/17 3:41 pm  
srafer: Approved for Engineering DSCC Chair
- 04/10/17 3:44 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC

Majors

Agenda post

Elective for  
Majors No

---

Justification for  
change: Change in pre-reqs of the course to align more with the course description

Semesters  
previously  
offered as an  
experimental  
course

Co-Listed  
Courses:

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Course Reviewer  
Comments **sraper (04/10/17 3:41 pm):** Changed to required for majors and modified prereq  
statement.

Key: 682  
[Preview Bridge](#)



# Course Inventory Change Request

Date Submitted: 03/10/17 11:09 am

Viewing: **MIN ENG 5612 : Principles of ~~Of~~ Explosives Engineering**

File: 408.1

Last edit: 04/10/17 3:42 pm

Changes proposed by: cifarellit

Catalog Pages referencing this course	<a href="#">Explosives Engineering</a>
Programs referencing this course	<a href="#">EXP EN-MI: Explosives Engineering Minor</a> <a href="#">EXP EN-MS: Explosives Engineering MS</a> <a href="#">GE ENG-BS: Geological Engineering BS</a> <a href="#">MI ENG-BS: Mining Engineering BS</a>
Other Courses referencing this course	In The Catalog Description: <a href="#">EXP ENG 5612 : Principles Of Explosives Engineering</a> In The Prerequisites: <a href="#">EXP ENG 5622 : Blasting Design And Technology</a> <a href="#">EXP ENG 6412 : Environmental Controls For Blasting</a> <a href="#">MIN ENG 5622 : Blasting Design And Technology</a> <a href="#">MIN ENG 6622 : Environmental Controls For Blasting</a>

Requested Effective Change Date	Fall <del>2014</del> <b>2017</b>
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	5612
Title	Principles <b>of</b> <del>Of</del> Explosives Engineering
Abbreviated Course Title	Prin Of Explosives Engr

Catalog Description	Theory and application of explosives in the mining industry; explosives, initiating systems, characteristics of explosive reactions and rock breakage, fundamentals of blast design, drilling and blasting, regulatory and safety considerations.
Prerequisites	Min Eng 2126; <del>accompanied or preceded by Civ Eng 2715 or Geology 3310 or Geology 2611</del> ; Successful background check.
Field Trip Statement	

## In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

1. 03/13/17 10:49 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
2. 03/15/17 3:26 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 3:42 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 3:44 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC

Credit Hours      LEC: 2              LAB: 1              IND: 0              RSD: 0              Total: 3

[Agenda post](#)

Required for  
Majors      **Yes** ~~No~~

Elective for  
Majors      No

---

Justification for  
change:      Change in pre-reqs and co-reqs of the course to align more with the course  
description

Semesters  
previously  
offered as an  
experimental  
course

Co-Listed  
Courses:      EXP ENG 5612 - Principles Of Explosives Engineering

---

Course Reviewer  
Comments      **sraper (04/10/17 3:42 pm):** Changed "Of" to "of" in course title and selected  
required for majors box.

Key: 408  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/02/17 11:10 am

Viewing: **MIN ENG 5913 : Advanced Computer Aided Mine Design**

File: 300.1

Last edit: 04/10/17 3:43 pm

Changes proposed by: cifarellit

Requested	Fall <b>2017</b> <del>2014</del>
Effective Change Date	
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	5913
Title	<b>Advanced</b> Computer Aided Mine Design
Abbreviated Course Title	<b>ADV COMP AID MIN DESIGN</b> <del>Computer Aided Mine Design</del>

Catalog Description: Project-based mine planning and design course. Engineering design process applied to computer-aided mine planning and design. Mine layouts, production planning, and materials scheduling optimization.

Prerequisites: **Graduate standing.** ~~Min Eng 2914 or graduate standing.~~

Field Trip Statement

Credit Hours: LEC: 2      LAB: 1      IND: 0      RSD: 0      Total: 3

Required for Majors: No

Elective for Majors: No

Justification for change: Change in title, material, and content of the course to align more with the course description.

Semesters previously offered as an experimental course

Co-Listed Courses:

## In Workflow

- 1. RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

- 03/13/17 10:38 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
- 03/15/17 3:26 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
- 04/10/17 3:43 pm  
srafer: Approved for Engineering DSCC Chair
- 04/10/17 3:46 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC

Course Reviewer  
Comments

**sraper (04/10/17 3:43 pm):** Leaving this unchanged but will share DSCC comments for further discussion.

Agenda post

Key: 300  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 02/22/17 12:55 pm

Viewing: **NUC ENG 4259 : Licensing Of Nuclear Power Plants**

File: 134.1

Last edit: 03/14/17 3:01 pm

Changes proposed by: usmans

Requested	Fall <b>2017</b> <del>2014</del>
Effective Change Date	
Department	Mining & Nuclear Engineering
Discipline	Nuclear Engineering (NUC ENG)
Course Number	4259
Title	Licensing Of Nuclear Power Plants
Abbreviated Course Title	Licensing Nuc Pwr Plants

**Catalog Description** The pertinent sections of the Code of Federal Regulations, the Nuclear Regulatory Commission's Regulatory Guides and Staff Position Papers, and other regulatory requirements are reviewed. Safety analysis reports and environmental reports for specific plants are studied. **Operational aspects of the nuclear power plant will be covered by including field trips.**

**Prerequisites** **NUC ENG 3205**

**Field Trip Statement**

**Credit Hours** LEC: 2      LAB: **1** ~~0~~      IND: 0      RSD: 0      Total: 2

**Required for Majors** No

**Elective for Majors** **Yes** ~~No~~

**Justification for change:** During several development board meetings, the need for a course on operational aspects and licensing was identified by the board members. To address this need, this course is developed/modified as an inter-campus shared course. The lecture portion of the course has been in the catalog for many years. The request is to add a lab section for the class which will include experiential learning through field trips to nuclear power plants.

## In Workflow

1. **RMINNUCL 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. Ishelton
11. Peoplesoft

## Approval Path

1. 02/27/17 1:08 pm  
Braden lusk (blusk): Approved for RMINNUCL Chair
2. 02/27/17 1:09 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 03/14/17 3:01 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 2:22 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

**Not known - not since the proposer arrived on campus in 2004.**

Co-Listed Courses:

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Course Reviewer Comments **sraper (03/14/17 3:01 pm):** I have asked Nuc Eng to provided field trip information for the CCC meeting.

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Key: 134  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 03/02/17 9:51 am

Viewing: **NUC ENG 4496 : Nuclear System Design I**

File: 2371.1

Last edit: 03/02/17 9:51 am

Changes proposed by: castanoc

Programs referencing this course	<a href="#">NU ENG-BS: Nuclear Engineering BS</a>				
Other Courses referencing this course	In The Prerequisites: <a href="#">NUC ENG 4497 : Nuclear System Design II</a>				
Requested Effective Change Date	<b>Spring 2018</b> <del>Fall 2014</del>				
Department	Mining & Nuclear Engineering				
Discipline	Nuclear Engineering (NUC ENG)				
Course Number	4496				
Title	Nuclear System Design I				
Abbreviated Course Title	Nuclear System Design I				
Catalog Description	A preliminary design of a nuclear system (e.g. a fission or fusion nuclear reactor plant, a space power system, a radioactive waste disposal system).				
Prerequisites	Nuc Eng 3223, 4203, 4229, preceded or accompanied by Nuc Eng 4241.				
Field Trip Statement					
Credit Hours	LEC: <b>0</b> <del>1</del>	LAB: <b>1</b> <del>0</del>	IND: 0	RSD: 0	Total: 1
Required for Majors	<b>Yes</b> <del>No</del>				
Elective for Majors	No				
Justification for change:	To better educate our senior students in the knowledge of contemporary issues (ABET Student Outcome J), we will ask them to attend the departmental seminars. Therefore this change will allow us to have 2 contact hours per week, one will be the				

- In Workflow
1. **RMINNUCL 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. Ishelton
  11. Peoplesoft

- Approval Path
1. 03/08/17 10:12 am  
Braden lusk (blusk): Approved for RMINNUCL Chair
  2. 03/08/17 11:12 am  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
  3. 04/10/17 3:45 pm  
srafer: Approved for Engineering DSCC Chair
  4. 04/10/17 3:46 pm  
Kristy Giacomelli (kristyg): Approved for

Pending CCC  
Agenda post

seminar, the second is the traditional senior design preparation meeting. The seminars usually bring information useful to our students in the preparation of their senior design and useful once they graduate to know new trends in engineering and research. This change also aligns the class closer to its intended purpose, this is a class has always been run as an open lab where students select and do a preliminary design of a nuclear system.

Semesters previously offered as an experimental course

**In the Spring 2017, we asked all our seniors to attend the seminar every monday. Students appreciated the experience. Unfortunately, some students were not available at the time. Making this change will allow us to have the seminar hour as one of the contact hours for this course and guarantee availability of all seniors.**

Co-Listed  
Courses:

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Course Reviewer  
Comments

Key: 2371  
[Preview Bridge](#)



# Course Inventory Change Request

## New Course Proposal

Date Submitted: 04/06/17 11:22 am

Viewing: **PET ENG 2002 : Cooperative Work Training**

File: 4421

Last edit: 04/06/17 11:22 am

Changes proposed by: reflori

Requested	Fall 2017
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Petroleum Engineering (PET ENG)
Course Number	2002
Title	Cooperative Work Training
Abbreviated Course Title	Coop Work Training

Catalog Description	On the job experience gained through cooperative education with industry, with credit arranged through departmental cooperative advisor. Grade received depends on quality of reports submitted and work supervisor's evaluation.				
Prerequisites					
Field Trip Statement					
Credit Hours	LEC: 0	LAB: 0	IND: 1-3	RSD: 0	Total: 1-3
Required for Majors	No				
Elective for Majors	Yes				

Justification for new course:	Co-list with GE 2002 and give students an opportunity to gain credit through internship project work.
Semesters previously offered as an experimental course	None, but this is a proposed co-listing to an existing course, GE 2002.

### 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
10. Ishelton
11. Peoplesoft

### Approval Path

1. 04/07/17 6:01 pm  
Francisca Oboh-Ikuenobe (ikuenobe):  
Approved for RGEOSENG Chair
2. 04/08/17 4:05 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 04/18/17 8:26 am  
sraoper: Approved for Engineering DSCC Chair
4. 04/20/17 4:12 pm  
Lahne Black (lahne): Approved for Pending CCC Agenda post

Co-Listed            GEO ENG 2002 - Cooperative Work Training  
Courses:

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Course Reviewer  
Comments

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Key: 4421  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 02/17/17 3:27 pm

Viewing: **SYS ENG 6103 : Systems Life Cycle Costing Economic Analysis for Systems Engineering**

File: 1367.4

Last approved: 05/06/16 3:33 am

Last edit: 02/24/17 9:09 am

Changes proposed by: dagli

Catalog Pages referencing this course	<a href="#">Engineering Management</a> <a href="#">Systems Engineering</a>				
Programs referencing this course	<a href="#">SYS EN-PHD: Systems Engineering PhD</a> <a href="#">SYS ENG-MS: Systems Engineering MS</a>				
Requested Effective Change Date	<b>Summer 2017</b> <del>Spring 2016</del>				
Department	Engineering Management and Systems Engineering				
Discipline	Systems Engineering (SYS ENG)				
Course Number	6103				
Title	<b>Systems Life Cycle Costing</b> <del>Economic Analysis for Systems Engineering</del>				
Abbreviated Course Title	<b>Sys. Life Cycle Costing</b> <del>Economic Analysis Sys-Eng</del>				
Catalog Description	Methods of economic evaluation for engineering projects involving complex systems. Economic impacts on choosing system alternatives, life cycle costing, economic decisions involving risk and uncertainty, and engineering cost estimation for projects in government, defense, and commercial industries.				
Prerequisites	Graduate Standing.				
Field Trip Statement					
Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3
Required for Majors	<b>Yes</b> <del>No</del>				
Elective for	No				

## In Workflow

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

## Approval Path

1. 02/17/17 3:28 pm  
Suzanna Long (longsuz):  
Approved for RENG MNGT Chair
2. 02/21/17 3:12 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 03/14/17 2:55 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 2:22 pm  
Kristy Giacomelli (kristyg):  
Approved for Pending CCC

## Majors

## Agenda post

Justification for change: The new name reflects what is currently being covered in the course

Semesters previously offered as an experimental course

Co-Listed Courses:

## History

1. May 6, 2016 by dagli (1367.1)

Course Reviewer **sraper (02/24/17 9:09 am):** Changed effective date.

Comments

Key: 1367

[Preview Bridge](#)

## Program Change Request

Date Submitted: 03/10/17 3:13 pm

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

File: 146.17

Last approved: 10/07/16 1:36 pm

Last edit: 04/19/17 11:23 am

Changes proposed by: shannonk

Catalog Pages [Biological Sciences](#)  
Using this Program

Start Term Fall 2017  
Program Code BIO SC-BA  
Department Biological Sciences  
Title Biological Sciences BA

## 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.

### In Workflow

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

### Approval Path

1. 03/11/17 9:21 pm  
David Westenberg (djwesten):  
Approved for  
RBIOLSCI Chair
2. 03/13/17 9:20 am  
Kristy Giacomelli (kristyg): Approved  
for CCC Secretary
3. 04/19/17 11:24 am  
Ilene Morgan (imorgan):  
Approved for  
Sciences DSCC  
Chair
4. 04/20/17 4:11 pm  
Lahne Black (lahne): Approved  
for Pending CCC  
Agenda post

### History

1. [Aug 1, 2014 by shannonk](#)
2. [Jul 14, 2015 by pantaleoa](#)
3. [Oct 7, 2016 by shannonk](#)

Core Courses		
<a href="#">BIO SCI 1201</a>	Biological Sciences Freshman Seminar	1
<a href="#">BIO SCI 1113</a>	General Biology	3
or <a href="#">BIO SCI 1213</a>	Principles of Biology	
<a href="#">BIO SCI 1219</a>	General Biology Lab	2
<a href="#">BIO SCI 1223</a>	Biodiversity	3
<a href="#">BIO SCI 1229</a>	Biodiversity Lab	1
<a href="#">BIO SCI 2213</a>	Cell Biology	3
<a href="#">BIO SCI 2219</a>	Cell Biology Laboratory	1

<a href="#">BIO SCI 2223</a>	General Genetics	3
<a href="#">BIO SCI 2233</a>	Evolution	3
<a href="#">BIO SCI 2263</a>	Ecology	3
<a href="#">BIO SCI 4010</a>	Seminar	1
Advanced courses, 2000 level or higher (at least one with laboratory and one 3000 or 4000 level)		9
Chemistry		
<a href="#">CHEM 1310</a> & <a href="#">CHEM 1319</a> & <a href="#">CHEM 1320</a> & <a href="#">CHEM 1100</a>	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	9
<a href="#">CHEM 2210</a> & <a href="#">CHEM 2220</a>	Organic Chemistry I and Organic Chemistry II	8
Mathematics & Physical Science		
Various courses in mathematics, physics, and/or geology chosen in consultation with academic advisor. (Note: Proficiency in College Algebra must be demonstrated by a grade of "C" or better in a College Algebra course or by examination)		9
Computer Science/Statistics (Select one of the following:)		3-4
<a href="#">COMP SCI 1570</a> & <a href="#">COMP SCI 1580</a>	Introduction To Programming and Introduction To Programming Laboratory	
or <a href="#">COMP SCI 1971</a> & <a href="#">COMP SCI 1981</a>	Introduction To Programming Methodology and Programming Methodology Laboratory	
<a href="#">STAT 3111</a>	Statistical Tools For Decision Making	
<a href="#">STAT 5425</a>	Introduction to Biostatistics	
General Requirements for BA		
English Composition		6
<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	
One additional composition course		
Western Civilizations		6
<a href="#">HISTORY 1100</a>	Early Western Civilization	
<a href="#">HISTORY 1200</a>	Modern Western Civilization	
Foreign Language (three semesters of a foreign language)		12
Humanities (including one class in each of literature, philosophy, and fine arts)		12
Social Sciences (including classes in two of the following three subjects: economics, political science, psychology)		12

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

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

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

<a href="#">CHEM 2219</a> & <a href="#">CHEM 2229</a>	Organic Chemistry I Lab and Organic Chemistry II Lab	2
2 semesters of Physics and labs:		8-10
<a href="#">PHYSICS 1145</a> & <a href="#">PHYSICS 1119</a>	College Physics I and General Physics Laboratory	
or <a href="#">PHYSICS 1111</a> & <a href="#">PHYSICS 1119</a>	General Physics I and General Physics Laboratory	
<a href="#">PHYSICS 2145</a> & <a href="#">PHYSICS 2119</a>	College Physics II and General Physics Laboratory	
or <a href="#">PHYSICS 2111</a> & <a href="#">PHYSICS 2119</a>	General Physics II and General Physics Laboratory	

The following classes are highly recommended:

<a href="#">BIO SCI 3333</a>	Human Anatomy and Physiology I	3
<a href="#">BIO SCI 3339</a>	Human Anatomy Physiology I Lab	1
<a href="#">BIO SCI 3343</a>	Human Anatomy and Physiology II	3
<a href="#">BIO SCI 3349</a>	Human Anatomy and Physiology II Laboratory	1
<a href="#">CHEM 4610</a>	General Biochemistry	3

## 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 within 30 miles of the Rolla campus.

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 at least a 22 ACT, maintain a cumulative GPA of at least 2.5, and attain at least a 2.5 GPA average for all biology courses. 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.

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

Humanities: 18 semester hours		
<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
or <a href="#">ENGLISH 3560</a>	Technical Writing	
<a href="#">SP&amp;M S 1185</a>	Principles Of Speech	3
At least one course in each of the following: Literature, Philosophy and Fine Arts		
9		
Social Sciences: 15 semester hours		
<a href="#">HISTORY 3530</a>	History of Science	3
<a href="#">HISTORY 1100</a>	Early Western Civilization	3
<a href="#">HISTORY 1200</a>	Modern Western Civilization	3
<a href="#">POL SCI 1200</a>	American Government	3
<a href="#">PSYCH 1101</a>	General Psychology	3
Mathematics/Physical Science: 9 semester hours		
<a href="#">MATH 1103</a>	Fundamentals Of Algebra	3
<a href="#">PHYSICS 1145</a>	College Physics I	3
<a href="#">GEOLOGY 1110</a>	Physical And Environmental Geology	3
Computer Science/Statistics: 3 semester hours		
3 semester hours of Computer Science or Statistics		
3		
Chemistry: 17 semester hours		
<a href="#">CHEM 1310</a> & <a href="#">CHEM 1319</a> & <a href="#">CHEM 1320</a> & <a href="#">CHEM 1100</a>	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	9
<a href="#">CHEM 2210</a> & <a href="#">CHEM 2220</a>	Organic Chemistry I and Organic Chemistry II	8
Biological Sciences: 27 semester hours		
<a href="#">BIO SCI 1201</a>	Biological Sciences Freshman Seminar	1
<a href="#">BIO SCI 1213</a> & <a href="#">BIO SCI 1219</a>	Principles of Biology and General Biology Lab	5
<a href="#">BIO SCI 1223</a> & <a href="#">BIO SCI 1229</a>	Biodiversity and Biodiversity Lab	4

<a href="#">BIO SCI 1173</a>	Introduction to Environmental Sciences	3
<a href="#">BIO SCI 2213</a> & <a href="#">BIO SCI 2219</a>	Cell Biology and Cell Biology Laboratory	4
<a href="#">BIO SCI 2223</a>	General Genetics	3
<a href="#">BIO SCI 2233</a>	Evolution	3
<a href="#">BIO SCI 2263</a>	Ecology	3
<a href="#">BIO SCI 4010</a>	Seminar	1
Education: 42 semester hours		
<a href="#">EDUC 1040</a>	Perspectives In Education	2
<a href="#">EDUC 1104</a>	Teacher Field Experience	2
<a href="#">EDUC 1164</a>	Aiding Elementary, Middle And Secondary Schools	2
<a href="#">EDUC 1174</a>	School Organization & Adm For Elementary & Secondary Teachers	2
<a href="#">EDUC 2216</a>	<b>Course EDUC 2216 Not Found</b>	<b>3</b>
<a href="#">EDUC 3216</a>	<b>Teaching Reading in Content Area</b>	<b>3</b>
<a href="#">EDUC 3280</a>	Teaching Methods And Skills In The Content Areas	6
<a href="#">EDUC 4298</a>	Student Teaching Seminar	1
<a href="#">EDUC 4299</a>	Student Teaching	12
<a href="#">ENGLISH 3170</a>	Teaching And Supervising Reading and Writing	3
<a href="#">PSYCH 2300</a>	Educational Psychology	3
<a href="#">PSYCH 3311</a>	Psychological & Educational Development Of The Adolescent	3
<a href="#">PSYCH 4310</a>	Psychology Of The Exceptional Child	3

Justification for  
request

EDUC 2216 course number has changed to EDUC 3216 for Secondary Education  
Emphasis Area BA

Before the change in course numbering, part of the BA requirement was 45 hours at 200 level or above. During the change in course numbering, this requirement was changed (not at our department level) to 3000 or above <http://catalog.mst.edu/undergraduate/degreeprogramsandcourses/#text>.

The other departments on campus that offer BA degrees and may have been affected by this change are: chemistry, economics, English, history, multidisciplinary studies, philosophy, and psychology.

The problem for Biology BA degrees is that all required Chemistry, Physics, Math, History, English, and Biology courses for the BA degrees are 1000 or 2000 level, therefore it is not possible to meet this requirement within 120 hours. We would like to change our BA degree requirement to 45 hours at 2000 level or above

Supporting  
Documents

Course Reviewer  
Comments

**imorgan (04/19/17 11:23 am):** I removed an editorial comment from the form.



## Program Change Request

Date Submitted: 04/06/17 4:32 pm

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

File: 16.21

Last approved: 06/19/15 9:08 am

Last edit: 04/19/17 12:01 pm

Changes proposed by: tschuman

Catalog Pages [Chemistry](#)  
Using this  
Program

Start Term Fall **2017** ~~2015~~  
Program Code CHEM-BS  
Department Chemistry  
Title Chemistry BS

## Program Requirements and Description

### Bachelor of Science Chemistry

A minimum of **127** ~~of 131~~ credit hours is required for a Bachelor of Science degree in Chemistry and an average of at least two grade points per credit hour must be obtained. These requirements for the B.S. degree are in addition to credit received for algebra, trigonometry, and basic ROTC.

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

### In Workflow

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

### Approval Path

1. 04/06/17 8:37 pm  
woelk (woelkk):  
Approved for  
RCHEMIST Chair
2. 04/08/17 4:04 pm  
Kristy Giacomelli  
(kristyg): Approved  
for CCC Secretary
3. 04/19/17 11:30 am  
Ilene Morgan  
(imorgan):  
Approved for  
Sciences DSCC  
Chair
4. 04/20/17 4:12 pm  
Lahne Black  
(lahne): Approved  
for Pending CCC  
Agenda post

### History

1. Apr 28, 2014 by  
Thomas Schuman  
(tschuman)
2. Jun 19, 2015 by  
woelk (woelkk)

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 1310</a>	4	<a href="#">CHEM 1320</a>	3
<a href="#">CHEM 1319</a>	1	<a href="#">CHEM 1510</a>	2
<a href="#">CHEM 1100</a>	1	<del>MATH 1224</del>	<del>5</del>
<a href="#">CHEM 1110</a>	1	<b>MATH 1215</b>	<b>4</b>
<del>MATH 1208</del>	<del>5</del>	Electives	6
<b>MATH 1214</b>	<b>4</b>		
<a href="#">ENGLISH 1120</a>	3		
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3		

	17		15
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2210</a>	4	<a href="#">CHEM 2220</a>	4
<a href="#">CHEM 2219</a>	1	<a href="#">CHEM 2229</a>	1
<a href="#">MATH 2222</a>	4	<a href="#">CHEM 3410</a>	3
Electives	3	<a href="#">PHYSICS 2135</a>	4
<a href="#">PHYSICS 1135</a>	4	Select one of the following sequences:	3
		<a href="#">COMP SCI 1971</a> & <a href="#">COMP SCI 1981</a>	
		<a href="#">COMP SCI 1972</a> & <a href="#">COMP SCI 1982</a>	
		<a href="#">COMP SCI 1570</a> & <a href="#">COMP SCI 1580</a>	
	16		15
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2310</a>	3	<a href="#">CHEM 2319</a>	1
<a href="#">CHEM 2510</a>	4	<a href="#">CHEM 2320</a>	3
<a href="#">CHEM 3430</a>	3	<a href="#">CHEM 3420</a>	3
<a href="#">STAT 3113</a> or <a href="#">3115</a>	3	<a href="#">CHEM 3459</a>	2
<a href="#">ENGLISH 1160</a> or <a href="#">3560</a>	3	Electives	6
	16		15
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 3510</a>	4	<a href="#">CHEM 4010</a> or <a href="#">4099</a>	1
<a href="#">CHEM 4010</a> or <a href="#">4099</a>	1	<a href="#">CHEM 4297</a>	3
<a href="#">CHEM 4610</a>	3	Electives	12
<a href="#">CHEM 4810</a>	3		
Electives	6		
	17		16
Total Credits: 127			

**Notes:**

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

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

**Electives:** There are **thirty-three (33)** ~~thirty-five (35)~~ hours of **electives, not to include Math courses that are prerequisite to calculus. electives.** Twelve (12) hours must be 2xxx, 3xxx, 4xxx (or 5xxx or higher with permission) level in chemistry or another technical area with permission of department. Six (6) elective hours must be completed in the social sciences. Six (6) elective hours are required in the humanities. Three (**3**) of the humanities hours must be **literature.**

**literature.**

## Chemistry Biochemistry Emphasis Area

<b>Freshman Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 1310</a>	4	<a href="#">CHEM 1320</a>	3
<a href="#">CHEM 1319</a>	1	<a href="#">CHEM 1510</a>	2
<a href="#">CHEM 1100</a>	1	<a href="#">MATH 1224</a>	5
<a href="#">CHEM 1110</a>	1	<a href="#">MATH 1215</a>	4

<b>MATH 4208</b>	<b>5</b>	<a href="#">BIO SCI 2213</a>	3
<a href="#">ENGLISH 1120</a>	3	<a href="#">BIO SCI 2219</a>	1
<b>MATH 1214</b>	<b>4</b>	Electives	3
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3		
	17		16
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2210</a>	4	<a href="#">CHEM 2220</a>	4
<a href="#">CHEM 2219</a>	1	<a href="#">CHEM 2229</a>	1
<a href="#">MATH 2222</a>	4	<a href="#">CHEM 3410</a>	3
<a href="#">PHYSICS 1135</a>	4	<a href="#">PHYSICS 2135</a>	4
Electives	3	Select one of the following sequences:	3
		<a href="#">COMP SCI 1971</a> & <a href="#">COMP SCI 1981</a>	
		<a href="#">COMP SCI 1972</a> & <a href="#">COMP SCI 1982</a>	
		<a href="#">COMP SCI 1570</a> & <a href="#">COMP SCI 1580</a>	
	16		15
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2310</a>	3	<a href="#">CHEM 2319</a>	1
<a href="#">CHEM 3430</a>	3	<a href="#">CHEM 2320</a>	3
<a href="#">CHEM 4610</a>	3	<a href="#">CHEM 2510</a>	4
<a href="#">CHEM 4619</a>	2	<a href="#">CHEM 3420</a>	3
<a href="#">STAT 3113</a> or <a href="#">3115</a>	3	<a href="#">CHEM 3459</a>	2
<a href="#">ENGLISH 1160</a> or <a href="#">3560</a>	3	<a href="#">CHEM 4620</a>	3
	17		16
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 3510</a>	4	<a href="#">CHEM 4010</a> or <a href="#">4099</a>	1
<a href="#">CHEM 4010</a> or <a href="#">4099</a>	1	<a href="#">CHEM 4297</a>	3
<a href="#">CHEM 4810</a>	3	Electives	12
<a href="#">BIO SCI 4323</a>	3		
Electives	3		
	14		16
Total Credits: 127			

**Notes:**

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

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

**Electives:** **There are twenty-one (21) hours of electives, not to include Math courses that are prerequisite to calculus.** ~~There are twenty-three (23) hours of electives.~~ Six (6) elective hours must be completed in the social sciences. Six (6) elective hours are required in the humanities. Three (3) of the humanities hours must be literature.

**Polymer & Coatings Science Emphasis Area**

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

<a href="#">CHEM 1319</a>	1	<a href="#">CHEM 1510</a>	2
<a href="#">CHEM 1100</a>	1	<del>MATH 1224</del>	5
<a href="#">CHEM 1110</a>	1	<b>MATH 1215</b>	4
<del>MATH 1208</del>	5	Electives	6
<b>MATH 1214</b>	4		
<a href="#">ENGLISH 1120</a>	3		
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3		
	17		15
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2210</a>	4	<a href="#">CHEM 2220</a>	4
<a href="#">CHEM 2219</a>	1	<a href="#">CHEM 2229</a>	1
<a href="#">MATH 2222</a>	4	<a href="#">CHEM 3410</a>	3
<a href="#">PHYSICS 1135</a>	4	<a href="#">PHYSICS 2135</a>	4
Electives	3	Select one of the following sequences:	3
		<a href="#">COMP SCI 1971</a> & <a href="#">COMP SCI 1981</a>	
		<a href="#">COMP SCI 1972</a> & <a href="#">COMP SCI 1982</a>	
		<a href="#">COMP SCI 1570</a> & <a href="#">COMP SCI 1580</a>	
	16		15
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2510</a>	4	<a href="#">CHEM 3420</a>	3
<a href="#">CHEM 3430</a>	3	<a href="#">CHEM 3459</a>	2
<a href="#">CHEM 4810</a>	3	<a href="#">CHEM 4099</a>	3
<a href="#">STAT 3113</a> or <a href="#">3115</a>	3	<a href="#">CHEM 4819</a>	3
<a href="#">ENGLISH 1160</a> or <a href="#">3560</a>	3	<a href="#">CHEM 4850</a>	3
		<del>Electives</del>	3
	16		14
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 2310</a>	3	<a href="#">CHEM 2319</a>	1
<a href="#">CHEM 3510</a>	4	<a href="#">CHEM 2320</a>	3
<a href="#">CHEM 4610</a>	3	<a href="#">CHEM 4297</a>	3
<a href="#">PHYSICS 4523</a>	3	Electives	10
Electives	4		
	17		17
Total Credits: 127			

**Notes:**

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

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

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

**Electives:** There are **twenty-three (23)** ~~twenty-five (25)~~ hours of **electives, not to include Math courses that are prerequisite to calculus. electives-** Six (6) elective hours must be completed in the social sciences. Six (6) elective hours are required in the humanities. Three (**3**) of the humanities hours must be literature.

**Pre-medicine Emphasis Area**

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 1310</a>	4	<a href="#">CHEM 1320</a>	3
<a href="#">CHEM 1319</a>	1	<a href="#">CHEM 1510</a>	2
<a href="#">CHEM 1100</a>	1	<del>MATH 1224</del>	5
<a href="#">CHEM 1110</a>	1	<b>MATH 1215</b>	4
<del>MATH 1208</del>	5	<a href="#">BIO SCI 1113</a>	3
<b>MATH 1214</b>	4	<a href="#">BIO SCI 1219</a>	2
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3	<a href="#">ENGLISH 1120</a>	3
	14		17
Sophomore Year			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 2210</a>	4	<a href="#">CHEM 2220</a>	4
<a href="#">CHEM 2219</a>	1	<a href="#">CHEM 2229</a>	1
<a href="#">MATH 2222</a>	4	<a href="#">CHEM 3410</a>	3
<a href="#">PHYSICS 1135</a>	4	<a href="#">PHYSICS 2135</a>	4
<a href="#">BIO SCI 2213</a>	3	Select one of the following sequences:	3
<a href="#">BIO SCI 2219</a>	1	<a href="#">COMP SCI 1971</a> & <a href="#">COMP SCI 1981</a>	
		<a href="#">COMP SCI 1972</a> & <a href="#">COMP SCI 1982</a>	
		<a href="#">COMP SCI 1570</a> & <a href="#">COMP SCI 1580</a>	
	17		15
Junior Year			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 3430</a>	3	<a href="#">CHEM 2510</a>	4
<a href="#">CHEM 4610</a>	3	<a href="#">CHEM 3420</a>	3
<a href="#">CHEM 4619</a>	2	<a href="#">CHEM 4620</a>	3
<a href="#">CHEM 4010</a> or <a href="#">4099</a>	1	<a href="#">STAT 3113</a> or <a href="#">3115</a>	3
<a href="#">BIO SCI 3333</a>	3	<a href="#">BIO SCI 3343</a>	3
<a href="#">BIO SCI 3339</a>	1	<a href="#">BIO SCI 3349</a>	1
<a href="#">ENGLISH 1160</a> or <a href="#">3560</a>	3		
	16		17
Senior Year			
First Semester	Credits	Second Semester	Credits
<a href="#">CHEM 2310</a>	3	<a href="#">CHEM 2319</a>	1
<a href="#">CHEM 3510</a>	4	<a href="#">CHEM 2320</a>	3
<a href="#">CHEM 3459</a>	2	<a href="#">CHEM 4297</a>	3
<a href="#">CHEM 4010</a> or <a href="#">4099</a>	1	Electives	8
<a href="#">CHEM 4810</a>	3		
Electives	3		
	16		15
Total Credits: 127			

**Notes:**

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

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

**Electives:** There are **eleven (11)** ~~thirteen (13)~~ hours of **electives, not to include Math courses that are prerequisite to calculus. Three** ~~electives.~~ ~~Three~~ (3) elective hours must be completed in the social sciences. Three (3) elective hours are required in the humanities, which must be literature.

Justification for  
request

We are realigning our degree requirements to currently offered math and physics "engineering" version courses, which are 4 credit hours less in total (1 credit hour each for 4 courses) than the original non-engineering version math and physics required courses. We are then dropping the total degree credit hours to 4 less than our historical number of degree hours,  $131 - 4 = 127$  credit hours. The additional issue is that we do not want prerequisite math courses lower than calculus to be used to satisfy electives requirements.

Supporting  
Documents

Course Reviewer  
Comments

**imorgan (04/19/17 11:28 am):** I changed "Three" to "Three (3)" to match the style of the other requirements.

**imorgan (04/19/17 11:29 am):** Found one additional instance.

**imorgan (04/19/17 11:29 am):** clean-up

**lahne (04/19/17 12:01 pm):** update effective date to Fall 2017

## Program Change Request

Date Submitted: 03/31/17 2:52 pm

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

File: 28.16

Last approved: 07/15/15 11:26 am

Last edit: 04/18/17 8:24 am

Changes proposed by: tauritzd

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

Start Term Fall **2017 2015**  
Program Code CMP SC-BS  
Department Computer Science  
Title Computer Science BS

## Program Requirements and Description

### Bachelor of Science Computer Science

A minimum of 128 credit hours is required for a Bachelor of Science degree in computer science 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 computer science curriculum requires twelve semester hours in humanities, exclusive of foreign language, and must include [ENGLISH 1160](#) or [ENGLISH 3560](#). A minimum of nine semester hours is required in social sciences, including either [HISTORY 1300](#), [HISTORY 1310](#), [HISTORY 1200](#), or [POL SCI 1200](#). Specific requirements for the bachelor degree are outlined in the sample program listed below.

All computer science majors must earn a "C" or better grade in all COMP SCI courses used to fulfill B.S. in computer science degree requirements as well as in [COMP ENG 2210](#), [COMP ENG 3150](#), and the required ethics elective.

### Sample Course of Study

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">COMP SCI 1010</a> <sup>14</sup>	1	<b>COMP SCI 1510</b>	3
<a href="#">COMP SCI 1570</a>	3	<a href="#">COMP SCI 1200</a>	3
<a href="#">COMP SCI 1580</a>	1	<b>MATH 1221</b> <sup>15</sup>	5
<b>MATH 1214</b>	4	Laboratory science course(s) <sup>1</sup>	5
<a href="#">ENGLISH 1120</a>	3	<b>COMP SCI 1575</b>	3
<b>MATH 1208</b> <sup>15</sup>	5	<b>COMP SCI 1585</b>	1
Humanities Elective <sup>5</sup>	3	<b>MATH 1215</b>	4

### In Workflow

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

### Approval Path

1. 03/31/17 3:31 pm  
Sajal Das (sdas):  
Approved for RCOMPSCI Chair
2. 04/06/17 11:19 am  
Lahne Black (lahne): Approved for CCC Secretary
3. 04/18/17 8:24 am  
srafer: Approved for Engineering DSCC Chair
4. 04/20/17 4:13 pm  
Lahne Black (lahne): Approved for Pending CCC Agenda post

### History

1. Aug 5, 2014 by tauritzd
2. Aug 13, 2014 by pantaleoa
3. Jun 19, 2015 by tauritzd
4. Jul 15, 2015 by pantaleoa

		<a href="#">ENGLISH 1160</a> <sup>13</sup>	3
		<a href="#">SP&amp;M S 1185</a> <sup>4</sup>	3
	15		17
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">COMP SCI 2200</a>	3	<a href="#">COMP SCI 2300</a>	3
<a href="#">COMP SCI 2500</a>	3	<a href="#">COMP ENG 2210</a> <sup>12</sup>	3
<a href="#">PHYSICS 1135</a> <sup>3</sup>	4	<a href="#">PHYSICS 2135</a> <sup>3</sup>	4
<a href="#">STAT 3115</a> <sup>6</sup>	3	<a href="#">MATH 3108</a> <sup>7</sup>	3
Social Science Elective <sup>2</sup>	3	<del>Physics Elective<sup>3</sup></del>	4
<del>Literature Elective<sup>5</sup></del>	3	<del>STAT 3115</del> <sup>6</sup>	3
<del>Physics Elective<sup>3</sup></del>	4	<a href="#">Literature Elective</a> <sup>5</sup>	3
<del>SP&amp;M S 1185</del> <sup>4</sup>	3		
	16		16
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">COMP SCI 3100</a>	3	<del>COMP SCI 3500</del>	3
<a href="#">COMP SCI 3500</a>	3	<a href="#">COMP SCI 3600</a>	3
<a href="#">COMP ENG 3150</a>	3	<a href="#">COMP SCI 3800</a>	3
<del>COMP SCI 2200</del>	3	<a href="#">Laboratory Science</a> <sup>1</sup>	5
<del>Free Elective</del> <sup>8</sup>	3	<a href="#">Sci/Eng Elective</a> <sup>10</sup>	3
History Elective <sup>2</sup>	3	Social Science Elective <sup>2</sup>	3
<del>COMP SCI 3800</del>	3	<del>COMP SCI 3200</del>	3
<a href="#">Ethics Elective</a> <sup>11</sup>	3	<del>ENGLISH 1160</del> <sup>13</sup>	3
		<del>COMP SCI 3100</del>	3
	15		17
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">COMP SCI 4096</a>	3	Cmp Sc Electives <sup>9</sup>	9
Cmp Sc Electives <sup>9</sup>	6	Sci/Eng Elective <sup>10</sup>	3
<del>Eng/Science Electives</del> <sup>10</sup>	6	<del>Ethics Elective</del> <sup>11</sup>	3
<a href="#">Sci/Eng Elective</a> <sup>10</sup>	3	Free Elective <sup>8</sup>	5
<a href="#">Free Elective</a> <sup>8</sup>	3		
	15		17
Total Credits: 128			

<sup>1</sup> Any science lecture-laboratory course or course pair totaling at least four hours credit. The laboratory is mandatory in all cases. These course(s) may be selected from: [CHEM 1310](#) and [CHEM 1319](#); [CHEM 1351](#); [BIO SCI 1113](#) and [BIO SCI 1219](#); [PHYSICS 1505](#) and [PHYSICS 1509](#); [GEOLOGY 1110](#) and [GEOLOGY 1119](#); [GEOLOGY 1120](#) and [GEOLOGY 1129](#); [BIO SCI 1223](#) and [BIO SCI 1229](#); [BIO SCI 2353](#) and [BIO SCI 2359](#).

<sup>2</sup> Any nine credit hours of social science courses approved on the list maintained on the computer science website. One course must satisfy the Missouri and U.S. Constitution requirement. [COMP SCI 4700](#) may be counted as a Social Science elective.

<sup>3</sup> Either [PHYSICS 1135](#) and [PHYSICS 2135](#) or both [PHYSICS 1111-PHYSICS 1119](#) and [PHYSICS 2111-PHYSICS 2119](#).

<sup>4</sup> [SP&M S 1185](#) or [SP&M S 3283](#).

<sup>5</sup> One literature and one humanities course approved on the list maintained on the computer science website.

<sup>6</sup> One of [STAT 3113](#), [STAT 3115](#), [STAT 3117](#) or [STAT 5643](#).

<sup>7</sup> [MATH 3103](#) or [MATH 3108](#).

<sup>8</sup> Courses chosen from any field so that 128 hours are completed. These and only these courses may be taken pass/fail and only one course may be taken pass/fail each semester. Some courses such as algebra, trigonometry, [MATH 1214](#), [MATH 1215](#), [MATH 1221](#), [PHYSICS 1111](#), [PHYSICS 1119](#), [PHYSICS 1135](#), [PHYSICS 2135](#),



	<a href="#">PHYSICS 2111</a> , <a href="#">PHYSICS 2119</a> , <a href="#">PHYSICS 1145</a> , <a href="#">PHYSICS 2145</a> and the first two years of ROTC do not count toward the free electives.
9	Fifteen hours of elective COMP SCI courses excluding <a href="#">COMP SCI 2002</a> , <a href="#">COMP SCI 4700</a> , COMP SCI 2001 - Domain Exploration and Innovation Methods, COMP SCI 3001 - Skill Development for Entrepreneurs and Innovators, COMP SCI 4001 - Advanced Domain Exploration and Innovation Methods, COMP SCI 4001 - Interpersonal Dynamics for Entrepreneurs and Innovators, and all COMP SCI x9xx courses. At least nine hours must be 5000-level or higher. At least nine hours must be lecture courses.
10	Any nine hours chosen from departments that offer a degree associated with either the Discipline Specific Curricula Committee for Sciences or the Discipline Specific Curricula Committee for Engineering, excluding computer science. These may not be <a href="#">MATH 1208</a> , <a href="#">MATH 1214</a> , <a href="#">MATH 1215</a> , <a href="#">MATH 1221</a> , <a href="#">PHYSICS 1111</a> , <a href="#">PHYSICS 1119</a> , <a href="#">PHYSICS 1135</a> , <a href="#">PHYSICS 2135</a> , <a href="#">PHYSICS 2111</a> , <a href="#">PHYSICS 2119</a> , <a href="#">PHYSICS 1145</a> , or <a href="#">PHYSICS 2145</a> .
11	<a href="#">PHILOS 3225</a> or <a href="#">PHILOS 3235</a> or <a href="#">PHILOS 4340</a> or <a href="#">PHILOS 4368</a> .
12	Laboratory not required.
13	Or <a href="#">ENGLISH 3560</a> Technical Writing.
14	Or <a href="#">BIO SCI 1201</a> <a href="#">CHEM 1110</a> , <a href="#">PHYSICS 1101</a> , <a href="#">MATH 1101</a> , or <a href="#">FR ENG 1100</a> .
15	<del>MATH 1214 may be taken instead of MATH 1208; MATH 1215 may be taken instead of MATH 1221</del>

**Justification for request**      The Comp Sci faculty voted on March 30th 2017 to make the Data Structures Lab (Comp Sci 1585 effective August 2017) required, as well as to make our Intro to Computer Security (Comp Sci 3600) required instead of our Numerical Methods course (Comp Sci 3200) in accordance with ACM/IEEE curricula recommendations. This DC form effects those changes as well as updates the sample course of study to both reflect those changes and clean up issues such as ensuring that prerequisite courses are taken in the correct order and replacing the general calc & physics course requirements with their engineering equivalents.

**Supporting Documents**

**Course Reviewer Comments**      **sraper (04/18/17 8:24 am):** At CCC: In sophomore year, first semester. Change Stats 3115 with foot note to Stats Elective. For footnote change to "Choose one of Stat 3113, Stat 3115, Stat 3115, or Stat 5643." per email communications.

## Program Change Request

Date Submitted: 03/08/17 11:29 am

Viewing: **CMP SC-MI : Computer Science Minor**

File: 29.9

Last approved: 07/15/15 11:27 am

Last edit: 04/10/17 2:19 pm

Changes proposed by: tauritzd

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

Start Term Fall **2017 2015**  
Program Code CMP SC-MI  
Department Computer Science  
Title Computer Science Minor

## Program Requirements and Description

### Computer Science Minor Curriculum

A student with a minor in computer science must meet the following requirements:

1. A "C" or better grade in at least 18 credit hours of COMP SCI courses, excluding x9xx courses.
2. A "C" or better grade in at least 9 credit hours of COMP SCI courses at the 2000 or higher level.
3. A "C" or better grade in two of the following courses: [COMP SCI 3100](#), [COMP SCI 2200](#), [COMP SCI 3200](#), [COMP SCI 2300](#), [COMP SCI 2500](#), [COMP SCI 3500](#) and [COMP SCI 3800](#).
4. **At most 6 of the 18 credit hours can be transfer credits and transfer classes must show a "C" or better grade.**

~~A member of the computer science faculty will serve as the student's minor advisor. The student and his/her minor advisor will plan a course of study to meet the specific interests and needs of the student.~~

Justification for request The addition of requirement #5 is to correct the inadvertent dropping of this requirement during the last update of the COMP SCI minor. This correction was unanimously approved at the March 1st 2017 COMP SCI faculty meeting.

Supporting  
Documents

Course Reviewer **sraper (04/10/17 2:19 pm)**: Removed original item # 4 per Daniel Tauritz email.  
Comments

### In Workflow

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

### Approval Path

1. 03/08/17 11:53 am Sajal Das (sdas): Approved for RCOMPSCI Chair
2. 03/08/17 2:35 pm Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 2:19 pm sraper: Approved for Engineering DSCC Chair
4. 04/10/17 2:22 pm Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

### History

1. Apr 28, 2014 by tauritzd
2. Aug 14, 2014 by Lahne Black (lahne)
3. Jul 15, 2015 by pantaleoa

## Program Change Request

Date Submitted: 04/09/17 2:25 pm

Viewing: **CR ENG-BS : Ceramic Engineering BS**

File: 149.21

Last approved: 07/15/15 9:19 am

Last edit: 04/18/17 8:39 am

Changes proposed by: smiller

Catalog Pages Using this Program	<a href="#">Ceramic Engineering</a>
Start Term	Fall <del>2017</del> 2015
Program Code	CR ENG-BS
Department	Materials Science & Engineering
Title	Ceramic Engineering BS

## Program Requirements and Description

### Bachelor of Science Ceramic Engineering

Entering freshmen desiring to study ceramic engineering will be admitted to the Freshman Engineering Program. They will be permitted to state a ceramic engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Freshman Engineering Program is on enhanced advising and career counseling, with the goal of providing to the student the information necessary to make an informed decision regarding the choice of a major.

For the bachelor of science degree in ceramic engineering a minimum of 128 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. A student must maintain an average of at least two grade points per credit hour in ceramic engineering.

Each student's program of study must contain a minimum of 18 credit hours of course work from the humanities and the social sciences areas and should be chosen according to the following rules:

1. All students are required to take one history course and one economics course. The history course is to be selected from [HISTORY 1200](#), [HISTORY 1300](#), [HISTORY 1310](#), or [POL SCI 1200](#). The economics course may be either [ECON 1100](#) or [ECON 1200](#).
2. Of the remaining hours, 12 credit hours must be taken in humanities or social sciences from the approved list of humanities and social science (HSS) courses posted on the undergraduate studies website (<http://ugs.mst.edu/>). Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000-level.
3. Special topics, special problems courses and honors seminars are allowed only by petition to and approval by the student's department chair.

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">FR ENG 1100</a>	1	<del>MET-ENG-1210</del>	3
<a href="#">CHEM 1310</a>	4	<a href="#">MATH 1215</a>	4
<a href="#">CHEM 1319</a>	1	<a href="#">CHEM 1320</a>	3
<a href="#">MATH 1214</a>	4	<a href="#">PHYSICS 1135</a>	4
<a href="#">ENGLISH 1120</a>	3	H/SS Elective	3
H/SS Elective	3	<a href="#">MECH ENG 1720</a>	3

### 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. [kristyg](#)

### Approval Path

1. 04/09/17 7:47 pm  
mjokeefe: Approved for RMATSENG Chair
2. 04/10/17 8:45 am  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/18/17 8:40 am  
srafer: Approved for Engineering DSCC Chair
4. 04/20/17 4:13 pm  
Lahne Black (lahne): 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 [smiller](#)
4. Jun 19, 2015 by [smiller](#)
5. Jul 15, 2015 by [pantaleoa](#)

	16		17
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CER ENG 2110</a>	3	<a href="#">CER ENG 2120</a>	3
<a href="#">CER ENG 2210</a>	2	<a href="#">CER ENG 2325</a>	2
<a href="#">CER ENG 2315</a>	2	<a href="#">CER ENG 3230</a>	3
<a href="#">MATH 2222</a>	4	<a href="#">MATH 3304</a> <sup>1</sup>	3
<a href="#">PHYSICS 2135</a>	4	H/SS Elective	3
		<a href="#">CIV ENG 2200</a>	3
	15		17
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CER ENG 3315</a>	2	<a href="#">CER ENG 3325</a>	2
<a href="#">CER ENG 3220</a>	3	<a href="#">CER ENG 3410</a>	3
<a href="#">CIV ENG 2210</a>	3	<a href="#">PHYSICS 2305</a>	3
<a href="#">CER ENG 3210</a>	3	H/SS Elective	3
H/SS Elective	3	<del>Technical Elective</del> <sup>2</sup>	2
<b>Technical Elective</b> <sup>2</sup>	2	Advanced Chemistry Elective <sup>3</sup>	3
		<a href="#">CER ENG 4410</a>	3
	16		17
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CER ENG 4096</a>	3	<a href="#">CER ENG 4097</a>	3
<a href="#">CER ENG 4310</a>	3	<a href="#">CER ENG 4220</a>	3
<a href="#">CER ENG 4250</a>	3	<a href="#">CER ENG 4240</a>	3
<del>ENG MGT 1240</del>	2	Statistics Elective <sup>1</sup>	3
Technical Elective <sup>2</sup>	3	Technical Elective <sup>2</sup>	3
H/SS Elective	3		
	15		15
Total Credits: 128			

**Note 1:** Students may substitute [MATH 1208](#) and [MATH 1221](#) for [MATH 1214](#) and [MATH 1215](#), respectively.

- <sup>1</sup> All ceramic engineering students must take [MATH 3304](#) and one statistics course (3000-level or higher).
- <sup>2</sup> Technical electives must be selected from upper level engineering and science courses with the advisor's approval.
- <sup>3</sup> All ceramic engineering students must select an advanced chemistry elective with the advisor's approval. The courses that can be considered are [CHEM 2210](#), [CHEM 2310](#), [CHEM 3410](#), [CHEM 4310](#), CHEM 4810, or [CHEM 3420](#).
- ~~<sup>4</sup> All ceramic engineering students must select an advanced chemistry elective with the advisor's approval. The courses that can be considered are CHEM 2210, CHEM 2310, CHEM 3410, CHEM 4310, or CHEM 3420.~~

**Note 2: Students may substitute CHEM 1320 for MET ENG 1210. Specific Degree Requirements**

- 1. Total number of hours required for a degree in ceramic engineering is 128.
- 2. The assumption is made that a student admitted in the department has completed 34 hours credit towards graduation. The academic program of students transferring from colleges outside Missouri S&T will be decided on a case-by-case basis.

~~The department requires a total of 18 credit hours of humanities and social science.~~

Justification for request      Update curriculum, expand elective offerings

Supporting  
Documents

Course Reviewer **sraper (04/18/17 8:39 am)**: Cer Eng 4220 is a four credit hour course. It needs to be changed as the hours, and in the intro to "minimum" 129. Awaiting feedback from S. Miller. to see if new three hour tech elective can go back to 2 credit hours. Will bring findings to CCC meeting.

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Key: 149  
[Preview Bridge](#)

## Program Change Request

Date Submitted: 03/13/17 11:00 am

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

File: 95.16

Last approved: 01/30/15 9:11 am

Last edit: 04/10/17 3:57 pm

Changes proposed by: cifarellit

Catalog Pages Using this Program	<a href="#">Mining Engineering</a>
Start Term	Fall 2017 8/1/2014
Program Code	MI ENG-BS
Department	Mining & Nuclear Engineering
Title	Mining Engineering BS

## Program Requirements and Description

### Bachelor of Science Mining Engineering

Entering freshmen desiring to study Mining Engineering will be admitted to the Freshman Engineering Program. They will, however, be permitted, if they wish, to state a Mining Engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Freshman Engineering program is on fundamental sciences and mathematics, enhanced advising and career counseling, with the goal of providing to the student the information necessary to make an informed decision regarding the choice of a major. In addition, students who state the Mining Engineering preference are required to complete Mining Engineering 2126 during the first or second semester on campus.

For the Bachelor of Science degree in Mining Engineering a minimum of 128 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. A student must maintain at least two grade points per credit hour for all courses taken in the student's major department, and an average of at least two grade points per credit hour must be maintained in Mining Engineering.

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

- All students are required to take one American ~~History history~~ course, ~~two one~~ economics courses, ~~one course, one~~ humanities course, **ENGLISH 1120 and either ENGLISH 1160, ENGLISH 3560 or TCH COM 1600.** ~~course and ENGLISH 1120.~~ The history course is to be selected from [HISTORY 1200](#) , [HISTORY 1300](#) , [HISTORY 1310](#) , or [POL SCI 1200](#) . The economics courses ~~must course may~~ be either [ECON 1100](#) or [ECON 1200](#), and [ECON 3512](#) . ~~ECON 4200~~ . The humanities course must be selected from "**The Approved List of Humanities and Social Science Courses the approved lists for Engineering Degrees**", maintained by the Office of Undergraduate Studies.
- ~~art, English, foreign languages, music, philosophy, speech and media studies, or theater.~~ ~~The Of the~~ remaining ~~three hours, six~~ credit hours must be taken from "**The Approved List of Humanities in humanities or social sciences at the 2000 level or above and Social Science Courses for Engineering Degrees**". ~~must be selected from the approved lists. Each of these courses must have as a prerequisite one of the humanities or social sciences courses already taken.~~ Foreign ~~Foreign~~ language courses can be considered to be one of these courses. (Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000 or 5000 level.)
- ~~Some departments list specific requirements; e.g., a psychology course, a literature course, and/or a second semester of economics. Selections should be made to ensure that these requirements are met.~~ Special topics, special problems courses and honors seminars are allowed only by petition to and approval by the student's department chairman.

The Mining Engineering program at Missouri S&T is characterized by its focus on the scientific basics of engineering and its innovative application; indeed, the underlying theme of this educational program is the application of the scientific basics to engineering practice through attention to problems and needs of the public. The necessary interrelations among the various topics, the engineering disciplines, and the other professions as they naturally come together in the solution of real world problems are emphasized as research, analysis, synthesis, and design are presented and discussed through classroom and laboratory instruction.

### In Workflow

- RMINNUCL Chair
- CCC Secretary
- Engineering DSCC Chair
- Pending CCC Agenda post
- CCC Meeting Agenda
- Campus Curricula Committee Chair
- FS Meeting Agenda
- Faculty Senate Chair
- Registrar
- kristyg

### Approval Path

- 03/13/17 1:00 pm  
Braden lusk (blusk):  
Approved for  
RMINNUCL Chair
- 03/15/17 3:25 pm  
Kristy Giacomelli  
(kristyg): Approved  
for CCC Secretary
- 04/10/17 3:57 pm  
srafer: Approved  
for Engineering  
DSCC Chair
- 04/10/17 4:00 pm  
Kristy Giacomelli  
(kristyg): Approved  
for Pending CCC  
Agenda post

### History

- Apr 28, 2014 by  
Kwame  
Auwah-Offei  
(kabp3)
- Jan 30, 2015 by  
Tina Alobaidan  
(cifarellit)

Freshman Year			
First Semester	Credits	Second Semester	Credits
MATH 1214	4	MATH 1215	4
General Education Elective <sup>1.1</sup>	3	PHYSICS 1135	4
GEO-ENG 4150	3	MECH ENG 1720	3
CHEM 1310	4	MIN ENG 1912	2
CHEM 1319	1	MIN ENG 2126	1
CHEM 1100	1	GEOLOGY 2644	3
FR ENG 1100	1	General Education Elective <sup>1.2</sup>	3
HISTORY 1200, or 1300, or 1310 or POL SCI 1200	3	GEO ENG 1150	3
ENGLISH 1120	3		
MIN ENG 2412	3		
	20		17
Sophomore Year			
First Semester	Credits	Second Semester	Credits
MATH 2222	4	MATH 3304	3
GEOLOGY 3310	3	CHEM 3410	3
GEOLOGY 3319	4	General Education Elective <sup>1.4</sup>	3
MIN ENG 2925	2	MIN ENG 3412	3
MIN ENG 3912	3	MECH ENG 2527	3
General Education Elective <sup>1.3</sup>	3	MECH ENG 2350	2
MIN ENG 3913	3	PHYSICS 2135	4
CIV ENG 2200	3	MECH ENG 2340	3
ECON 1100 or 1200	3		
	18		15
Junior Year			
First Semester	Credits	Second Semester	Credits
MIN ENG 3913	3	MIN ENG 4522	3
STAT 3113 or 3115	3	MIN ENG 4113	3
General Education Elective <sup>1.5</sup>	3	MIN ENG 4932	3
NUC ENG 3221 or CIV ENG 3330	3	MIN ENG 4512	3
MIN ENG 4932	3	MIN ENG 4933	3
CIV ENG 2210	3	MIN ENG 4823	3
CIV ENG 3330	3	ENGLISH 1600 or 1160 or 3560	3
MIN ENG 3412	3		
ECON 3512	3		
GEOLOGY 3310	3		
	18		15
Senior Year			
First Semester	Credits	Second Semester	Credits
MIN ENG 5612	3	MIN ENG 4742	3
MIN ENG 4912	3	MIN ENG 4097	4
MIN ENG 4824	2	Technical Elective <sup>1,2,3,4,5,6</sup>	3
General Education Elective <sup>1.6</sup>	3	General Education Elective <sup>1.7</sup>	3
MIN ENG 4096	3	HSS Elective	3
HSS Elective	3		
MIN ENG 4113	3		

15	13
Total Credits: 131	
1	<b>Explosives Engineering Emphasis:</b> <a href="#">MIN ENG 5622</a> (Blasting Tech) and either <a href="#">MIN ENG 4001</a> (Special Topics Explosives), <a href="#">MIN ENG 4099</a> (Undergraduate Research in Explosives), <a href="#">MIN ENG 4823</a> (Rock Mechanics) or <a href="#">MIN ENG 4922</a> (Tunneling/Construction) have to be taken as Technical Electives.
2	<b>Quarrying Emphasis:</b> Two of <a href="#">CIV ENG 3116</a> (Construction Materials); <a href="#">MIN ENG 4212</a> (Advanced Aggregate and Quarrying); and <a href="#">MIN ENG 4412</a> (Aggregate Materials) have to be taken as Technical Electives.
3	<b>Coal Emphasis:</b> Two of <a href="#">MIN ENG 4322</a> (Coal Mine Development and Production), <a href="#">MIN ENG 4414</a> (Mine Plant Management) or an approved substitute course must be taken as Technical Electives.
4	<b>Mining and the Environment Emphasis:</b> <a href="#">GEO ENG 5235</a> (Environmental Geological Engineering) and <a href="#">GEO ENG 5233</a> (Risk Assessment in Environmental Studies), or approved substitute courses have to be taken as Technical Electives.
5	<b>Mining Health and Safety Emphasis:</b> <a href="#">MIN ENG 3002</a> (Mine Rescue), <a href="#">ENG MGT 4330</a> (Human Factors), or other approved substitute courses must be taken as Technical Electives.
6	<b>Sustainable Development Emphasis:</b> <a href="#">POL SCI 3310</a> (Public Policy Analysis), <a href="#">ECON 4440</a> (Environmental and Natural Resource Economics), or other approved substitute courses must be taken as Technical Electives.
7	All students must have an Experiential Learning experience in order to graduate.
8	<i>Mining courses in italics are offered every semester.</i>

### Graduating Mining Engineers Examination

Mining engineering students must complete the **Fundamentals of Engineering Graduating Mining Engineers (GME)** Examination prior to graduation as a senior assessment requirement. A passing grade ~~on this examination~~ is **not** required to earn a B.S. **degree in mining engineering; however it is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process. Students must sign a release form giving the University access to their Fundamentals of Engineering Examination score.**

~~degree in mining engineering. The GME Exam ination comprises the Surface Mining Engineering (SME) and Underground Mining Engineering (UME) Examinations. The SME Exam focuses on MIN-ENG 3912 Materials Handling In Mines, MIN-ENG 2914 Surface Mine Design, [MIN-ENG 3412](#) [Course MIN-ENG 3412 Not Found](#), MIN-ENG 5612 Principles of Explosives Engineering, MIN-ENG 4933 Surface Mining Methods And Equipment, and MIN-ENG 4824 Soils and Overburden Materials for Mining Engineering. The UME Exam focuses on MIN-ENG 2924 Underground Mine Design, MIN-ENG 3512 Mining Industry Economics, MIN-ENG 4912 Mine Power And Drainage, MIN-ENG 4932 Underground Mining Methods And Equipment, and MIN-ENG 4823 Rock Mechanics. Mining engineering students are required to pass the GME Exam in order to graduate. The GME Exam will be graded with Pass or Fail designation. A mark below 50% will be assigned a failing grade and a mark of 85% or above will be a Pass with Distinction. Graduating seniors will have two opportunities to complete the GME requirement. However, students who fail these two attempts can register and complete the examination after completing the required 128 credits in Mining Engineering. Mining Health and Safety Emphasis~~

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

### Sustainable Development Emphasis

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

### Quarrying Engineering Emphasis

Senior Year		
<a href="#">CIV ENG 3116</a>	Construction Materials, Properties And Testing (in lieu of Technical Elective.)	3
<a href="#">MIN ENG 4212</a>	Advanced Aggregate and Quarrying (in lieu of Technical Elective.)	3



### Explosives Engineering Emphasis

Junior and Senior Years	
Choose one of the following courses in lieu of Technical Elective in Junior Year:	
A three-credit hour explosives engineering (EXP ENG) course	
<a href="#">MIN ENG 4922</a>	Tunneling & Underground Construction Techniques
or <a href="#">MIN ENG 5922</a>	Advanced Tunneling & Underground Construction Techniques
<a href="#">GEO ENG 5471</a>	Rock Engineering
In lieu of Technical Elective in Senior Year:	
<a href="#">EXP ENG 5622</a>	Blasting Design And Technology

### Coal Emphasis

Junior and Senior Years		
<a href="#">MIN ENG 4322</a>	Coal Mine Development And Production (in lieu of Technical Elective.)	3
<a href="#">MIN ENG 4414</a>	Mine Plant Management (or approved substitute course in lieu of Technical Elective.)	2

### Mining and the Environment Emphasis

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

Justification for request

1. DELETE footnote 1.
  - Justification. We have simplified our guidance on general education credits and this footnote is no longer necessary.
2. ADD English 1120 to first Semester freshman year (DELETE same class from 2nd semester Freshman year)
  - Justification. More closely aligns with what FE enrolls them in.
3. ADD Geo Eng 1150 Intro to Physical Geology to 2nd Semester Freshman year (DELETE the same course from 1st semester freshman year)
  - Justification. More closely aligns with what FE enrolls them in.
4. INCREASE Min Eng 1912 credit hours from 1 to 2 in freshman year 2nd semester
  - Justification. More mining material can be covered to set students up for upper level mining classes.
5. DELETE Geo Eng 2611 Mineralogy and Petrology from 2nd Semester freshman year
  - To keep credit hours at 128, a single course will be created 'Mineral Identification and Exploration' that will combine current Min and Pet with Exploration. This is a sophomore class.
6. REPLACE 'General Education Elective' with HSS history 1200, 1300, 1310 or Pol Sci 1200. In 1st semester freshman year.
  - Justification. Removed footnote and simplifying curriculum.
7. MOVE calculus to the top of the list for first semester freshman year
  - Justification. Important class at the top.
8. DELETE Geology 3319 Structural Geology Lab from the 1st semester of the sophomore year.
  - Justification: Lab experience in structural geology not required for mining engineering students. Interested mining students could take this course as an elective.
9. ADD Civ Eng 2200 Engineering Statics in 1st semester of sophomore year.
  - Justification: Civ Eng 2200 is a prerequisite for Civ Eng 2210, which is required in the 1st semester of the junior year. This addition fixes a problem created in the old

curriculum where students were not required to take the prerequisite for a required course.

10. ADD Min Eng 3931 Mineral Identification and Exploration to 1st Semester Sophomore year (DELETE Mining Exploration from 1st semester Junior year)

- Justification. Rock ID will be covered in this lab and is more suitable to come before Structural Geology.

11. REPLACE 'General Education Elective' with HSS Econ 1100 or 1200 Macro/Micro in 1st semester sophomore year.

- Justification. Removed footnote and simplifying curriculum.

12. ADD Mech Eng 2350 Engineering Mechanics-Dynamics in 2nd semester of sophomore year.

13. DELETE Mech Eng 2340 Statics and Dynamics from 2nd semester of sophomore year.

- Justification: Since Civ Eng 2200 is now required for mining engineers, Mech Eng 2340 is no longer necessary since Statics is already taught. The addition of Mecn Eng 2350 (Dynamics) makes up for the Dynamics aspects. This also meets the prerequisite for Civ Eng 3330 Engineering Fluid Mechanics.

14. ADD Min Eng 3412 Principles of Mineral Processing to 2nd semester of sophomore year. (DELETE the same course from 1st semester of junior year.)

- Justification: Introduce an essential mining engineering course in the sophomore year so students can build on the knowledge later.

15. REPLACE Chem 3410 Chemical Thermodynamics with Mech Eng 2527 Thermal Analysis in Second Semester Sophomore Year.

- Justification: more availability in class.

16. PERMIT Stat 3115 as an alternative to Stat 3113.

- Justification: Both courses meet the needs of mining engineering students. This provides our students flexibility without many substitution and waiver forms.

17. ADD Min Eng 4932 U/G Mining Methods & Equipment to 1st semester of junior year. (DELETE the same course from 2nd semester of junior year.)

- Justification: Better distribution of mining engineering courses.

18. ADD Geo 3310 to 1st semester of junior year. (DELETE the same course from 1st semester of sophomore year.)

- Justification: Come after Mineral ID

19. PERMIT Nuc Eng 3221 as an alternative to Civ Eng 3330 in the 1st semester of junior year.

- Justification: Both courses meet the needs of mining engineering students. This also brings teaching capacity to MNE department.

20. REPLACE 'General education elective' with HSS Econ 3512 Mining Industry Economics in 1st semester of junior year.

- Justification: mining econ approved as HSS but advised to put exon on curriculum to pass through easier...

21. ADD Min Eng 4512 to 2nd Semester Junior year.

- Justification: used to be an HSS. No longer approved and adding as required mining class.

22. ADD English 1600, 1160 or 3560 to Second Semester Junior Year. Remove 'General Education Elective' from second semester sophomore year.

23. DELETE MIN ENG 4824 Soils and Overburden Materials for Mining Engineering.

- Justification. To keep total credit hours down to 128.

24. ADD Min Eng 4113 Mine Atmosphere Control to 1st semester Senior Year. DELETE same class from 2nd semester Junior Year.

Supporting

## Documents

- Course Reviewer **sraper (09/07/16 9:51 am)**: Rollback: Mining Eng 4512 cannot be a General Ed Elective even though co-list with Econ. Foot note 1,6. Issues with footnotes in general with tech electives and Gen Ed sharing same footnotes.
- Comments **smetg6 (09/07/16 11:20 am)**: Rollback: Rolling back per Engineering DSCC Chair notes
- btlf7c (03/02/17 9:38 am)**: Rollback: This was rejected on the basis of the previous mess with ECON. We did get that problem solved with the committees on campus. Now we can push this change through with the rest. I actually knew this was sitting here, and i was just waiting for the curriculum approval by the department before moving forward. I didn't want two changes going through at once to the degree program. I suppose it does make sense for us to start with this as the basis for all of the changes you need to make!
- btlf7c (03/13/17 11:32 am)**: 1
- sraper (04/10/17 3:57 pm)**: Mining Eng 3412 in Second Semester, Sophomore year should be Mining Eng 2412. HSS electives should have footnote. Foot note 7 should be deleted. A general note needs to be added, or footnotes 1 - 6 should have a statement indicating these emphasis areas will require and additional 3 credit hours to obtain the emphasis. Reason for these is that I am not quite sure how to make these changes in the system.

## Program Change Request

Date Submitted: 04/09/17 8:22 pm

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

File: 169.7

Last approved: 07/23/15 4:16 pm

Last edit: 04/09/17 8:22 pm

Changes proposed by: pworsey

Catalog Pages Using this Program	<a href="#">Mining Engineering</a>
Start Term	Fall <del>2017</del> 2015
Program Code	MI ENG-MS
Department	Mining & Nuclear Engineering
Title	Mining Engineering MS

## Program Requirements and Description

The mining engineering program in the department of mining and nuclear engineering offers the graduate certificate, master of engineering (M.E.), master of science (M.S.), doctor of philosophy (Ph.D.) and doctor of engineering (D.E.) degrees in mining engineering. The M.S. **by thesis** and Ph.D. degrees require research components for program completion. The core research strengths include surface mining methods and heavy mining machinery, mine ventilation and mine atmospheric control, explosives engineering, sustainable development and mine optimization, rock mechanics and ground control, minerals, coal and materials processing, minerals and energy economics, and underground mining methods and equipment. Graduate students in any of these programs must consult the graduate degree requirements in mining engineering, the graduate catalog of Missouri S&T and their respective advisors.

The graduate certificate program requires ~~12~~ 15 credit hours in core courses. Students must have a minimum cumulative GPA of 3.00/4.00 to receive the graduate certificate in mining engineering. The ME program requires a minimum of 30 credit hours, offered via distance (online). The required credit hours include 15 core credit hours, 12 credit hours in technical electives and 3 credit hours for a semester **project. project. The M.S. The mining engineering program offers an M.S. degree with thesis for onsite students and an M.S. by coursework option for distance students. The M.S. de de gree with thesis option** requires a minimum of 30 credit hours, including the required research for the thesis. The program requirements must include a minimum of 6 credit hours of 6000-level **lecture** courses, 6 credit hours of courses outside the major field, and 6 credit hours for **thesis thesis-research**. M.S. candidates must pass a final oral examination of the thesis to complete the **program. program. The Ph.D. The M.S. degree by coursework option requires a minimum of 30 credit hours, including a minimum of 9 credit hours of 6000-level lecture courses and 3 credit hours for a semester project. The Ph.D.** program requires a minimum of 3 years of full-time study beyond the bachelor's degree, including research work for the dissertation. Ph.D. candidates must complete at least 15 credit hours of course work at Missouri S&T and are required to pass the qualifying, comprehensive and final oral examinations of the Ph.D. program. The D.E. degree requires a minimum of 3 years of full-time study beyond the bachelor's degree, including research work for the dissertation. D.E. students must pass the qualifying, comprehensive and final oral examinations and must also satisfy an engineering internship requirement.

## Major Research Areas

The eight research major areas include (i) surface mining methods and heavy mining machinery; (ii) mine ventilation and mine atmospheric control; (iii) explosives engineering; (iv) sustainable development and mine optimization; (v) rock mechanics and ground control; (vi) mineral, coal and materials processing; (vii) minerals and energy economics; and (viii) underground mining methods and equipment. **Surface mining methods and heavy mining machinery research** focuses on surface mining, formation excavation, heavy machinery imaging and integration, mine safety and health, machine and component health, equipment vision, intelligent mining systems and stochastic processes and risks simulation. Specific research frontiers include (i) mining methods, design and production systems; (ii) formation failure dynamics, machine-formation interactions; (iii) kinematics, dynamics and virtual prototype simulation; (iv) machine health and longevity; (v) augmented equipment vision; (vi) machine vibrations and operator health; (vii) tire durability management; (viii) intelligent excavation; (ix) machine automation; (x) random fields and stochastic processes; (xi) numerical, parametric and stochastic simulation.

### In Workflow

1. [RMINNUCL 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. [kristyg](#)

### Approval Path

1. 04/10/17 6:43 am  
Braden lusk (blusk):  
Approved for  
RMINNUCL Chair
2. 04/10/17 8:45 am  
Kristy Giacomelli  
(kristyg): Approved  
for CCC Secretary
3. 04/18/17 8:42 am  
srapr: Approved  
for Engineering  
DSCC Chair
4. 04/20/17 4:12 pm  
Lahne Black  
(lahne): Approved  
for Pending CCC  
Agenda post

### History

1. [Apr 28, 2014 by Kwame Awuah-Offei \(kabp3\)](#)
2. [Aug 5, 2014 by pantaleoa](#)
3. [Jul 23, 2015 by pantaleoa](#)

**Mine ventilation and mine atmospheric control research** focuses on mine ventilation network modeling and planning, diesel particulate matter (DPM), mine dust control, mine fire simulation and firefighting. Specific research frontiers include (i) ventilation network simulation, (ii) DPM discharge dissipation modeling and control strategies, (iii) spontaneous combustion modeling, firefighting and emergency planning; and (iv) computational fluid dynamics modeling of particulate matter. **Explosives engineering research** focuses on improvements in commercial explosives and blasting agents, mining-related uses of explosives, explosives safety, blast-resistant structures, barriers to blast, fragments, and ballistic penetration, and explosive-driven pulsed power. Specific research frontiers include (i) design, evaluation, analysis, and test; (ii) barrier concepts, standoff distance analysis, barrier design and test; (iii) design, evaluation, analysis, and test of explosive-driven pulsed power generator concepts and power conditioning systems.

**Sustainable development and mine optimization research** focuses on reserve estimation and ore control, production scheduling and optimization, and critical materials sustainability assessment and modeling. Specific research frontiers include (i) geostatistics, ore (dig) outline optimization; (ii) mixed integer LP formulations, computational efficiency, discrete event simulation, optimization, energy efficiency modeling; (iii) mining applications of life cycle assessment, life cycle sustainability assessment, social acceptance modeling, global critical material supply chain sustainability modeling, reclaimed mine land stray-gas hazards. **Rock Mechanics and ground control** research focuses on ground control, acoustic emission/microseismic, geophysical methods in mines, and non-destructive testing. Specific research frontiers include (i) pillar design, mine support, rockburst, slope stability; (ii) monitoring design, location methods, error analysis; (iii) geotomography, in-seam seismic method, void detection; and (iv) integrity of structures and monitoring of aging infrastructure.

**Minerals, coal and materials processing research** focuses on mineral processing, tailings management, polymer science, nanotechnology, interfacial science, colloidal interactions in aqueous systems, clays, coal-based fuels, ultrafine and submicron grinding, slurry rheology, carbon separation and synthetic fuels. **Minerals and energy economics research** focuses on supply and use of minerals and energy in society, minerals and energy markets and electricity markets, minerals and energy and economic growth, economics of minerals and energy infrastructure, minerals and energy policy, minerals and energy derivatives, minerals and energy demand forecast, elasticity of supply and demand in minerals and energy markets, climate change and climate policy, and sustainable minerals and energy development. **Underground mining methods and equipment research** focuses on mass mining, machine design and automation, underground mine support, machine vibration, novel mining methods, numerical modeling, virtual prototype simulation and computational fluid dynamics.

## Major Research Facilities

Mining, minerals and explosives engineering research initiatives are carried out in world-class environments at Missouri S&T. Major research facilities include the following:

- [Energetic Materials Research Center](#)
- [Experimental Mine](#)
- [Mineral Processing Laboratory](#)
- [Rock Mechanics and Explosives Research Center](#)
- [Rock Mechanics Laboratory](#)
- [Virtual Surface Mining Simulator](#)
- [High Pressure Waterjet Laboratory](#)

Justification for request

The mining engineering program wishes to phase out the Masters of Engineering (M.E.) and replace it with a Master of Science (M.S.) by coursework option for distance students. The M.E. degree is now rare and most distance masters degrees are Master of Science (M.S.). The M.E. is looked on as a peculiarity and not mainstream and inferior to the M.S. We think this will increase the marketability of the program. Offering the M.E. has been a detriment to our distance students in certain cases. The M.S. by coursework option will comply with existing minimum master's standards.

Our strategy is as follows:

Once the M.S. by coursework option for distance students is approved, we will replace the M.E. with the new program. Existing M.E. students will be given the option to transfer to the M.S. by coursework option and once the last remaining M.E. candidate has graduated or transferred we will then move to deactivate the M.E. program. We see this as one of our major strategies in increasing our distance enrolment, with the requested changes to the catalog description.

The graduate certificate program was also changed to 12 credit hours, as in the current catalog (which is correct).

Supporting Documents

Course Reviewer Comments

## Program Change Request

Date Submitted: 04/09/17 2:20 pm

Viewing: **MT ENG-BS : Metallurgical Engineering BS**

File: 90.24

Last approved: 03/27/17 2:47 pm

Last edit: 04/18/17 8:45 am

Changes proposed by: smiller

Catalog Pages Using this Program	<a href="#">Metallurgical Engineering</a>
Start Term	Fall 2017
Program Code	MT ENG-BS
Department	Materials Science & Engineering
Title	Metallurgical Engineering BS

## Program Requirements and Description

### Bachelor of Science Metallurgical Engineering

Entering freshmen desiring to study metallurgical engineering will be admitted to the Freshman Engineering Program. They will be permitted to state a metallurgical engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Freshman Engineering program is on enhanced advising and career counseling, with the goal of providing to the student the information necessary to make an informed decision regarding the choice of a major.

For the bachelor of science degree in metallurgical engineering a minimum of 128 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. A student must maintain an average of at least two grade points per credit hour in metallurgical engineering.

The metallurgical engineering curriculum contains a required number of hours in humanities and social sciences as specified by the Engineering Accreditation Commission of ABET. Each student's program of study must contain a minimum of 18 credit hours of course work from the humanities and the social sciences areas and should be chosen according to the following rules:

- All students are required to take one American history course and one economics course. The history course is to be selected from [HISTORY 1200](#), [HISTORY 1300](#), [HISTORY 1310](#), or [POL SCI 1200](#). The economics course may be either [ECON 1100](#) or [ECON 1200](#).
- Of the remaining hours, six credit hours must be taken in humanities or social sciences from the approved list of humanities and social science (HSS) courses posted on the undergraduate studies website (<http://ugs.mst.edu/>). Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000 level.)
- Special topics, special problems courses and honors seminars are allowed only by petition to and approval by the student's department chair.

### 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. [kristyg](#)

### Approval Path

1. 04/09/17 7:47 pm mjokeefe: Approved for RMATSENG Chair
2. 04/10/17 8:45 am Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/18/17 8:45 am sraper: Approved for Engineering DSCC Chair
4. 04/20/17 4:12 pm Lahne Black (lahne): 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 [smiller](#)
9. Mar 27, 2017 by [smiller](#)

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">FR ENG 1100</a>	1	<del>MET-ENG-1210<sup>2</sup></del>	3

<a href="#">CHEM 1310</a>	4	<a href="#">CHEM 1320</a>	3
<a href="#">CHEM 1319</a>	1	<a href="#">MATH 1215</a>	4
<a href="#">MATH 1214</a>	4	<a href="#">PHYSICS 1135</a>	4
<a href="#">ENGLISH 1120</a>	3	Hum/Soc Sci Elective <sup>1</sup>	3
Hum/Soc Sci Elective <sup>1</sup>	3	<a href="#">MECH ENG 1720</a>	3
	16		17
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">PHYSICS 2135</a>	4	<a href="#">CER ENG 3230</a>	3
<a href="#">MATH 2222</a>	4	<a href="#">CIV ENG 2210</a>	3
<a href="#">MET ENG 2110</a>	3	<a href="#">MET ENG 2125</a>	2
<a href="#">CIV ENG 2200</a>	3	<a href="#">MET ENG 3130</a>	3
Hum/Soc Sci Elective <sup>1</sup>	3	<a href="#">MET ENG 3420</a>	3
		<a href="#">MET ENG 3425</a>	1
		Hum/Soc Sci Elective <sup>1</sup>	3
	17		15
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MET ENG 3320</a>	3	<del>ENG-MGT-1100</del>	4
<a href="#">MATH 3304</a> <sup>2</sup>	3	<del>ENG-MGT-1210</del>	2
<a href="#">MET ENG 3120</a>	3	<a href="#">MET ENG 3225</a>	1
<a href="#">MET ENG 3125</a>	2	<a href="#">MET ENG 3220</a>	3
<a href="#">MET ENG 4420</a>	3	<a href="#">CER ENG 3410</a>	3
Communication Elective <sup>1</sup>	3	Core Elective <sup>4</sup>	3
		<del>Core Elective-I<sup>5</sup></del>	3
		<a href="#">Out of Department Technical Elective<sup>3</sup></a>	3
		<a href="#">Hum/Soc Sci Elective<sup>1</sup></a>	3
	17		16
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">MET ENG 4096</a>	3	<a href="#">MET ENG 4097</a>	3
Statistics Course <sup>2</sup>	3	Hum/Soc Sci Elective <sup>1</sup>	3
<a href="#">MET ENG 4350</a>	3	Technical Elective <sup>5</sup>	3
<a href="#">Core Elective<sup>4</sup></a>	3	Free Elective <sup>6</sup>	3
Technical Elective <sup>5</sup>	3	<a href="#">Core Elective<sup>4</sup></a>	3
<del>Technical Elective<sup>6</sup></del>	3		
	15		15
Total Credits: 128			

<sup>1</sup> Eighteen hours of required H/SS electives of which three hours must be history ([HISTORY 1200](#), [HISTORY 1300](#), [HISTORY 1310](#), or [POL SCI 1200](#)), three hours of economics ([ECON 1100](#) or [ECON 1200](#)) and three hours communications ([ENGLISH 1160](#), [ENGLISH 3560](#), or [SP&M S 1185](#))

<sup>2</sup> All metallurgical engineering students must take [MATH 3304](#) and one statistics course ([STAT 3113](#) or [STAT 3115](#))

<sup>3</sup> [CHEM ENG 5320](#), [CHEM 2210](#) or [CHEM 2310](#) or [CHEM 3410](#) or CHEM 4810, [ELEC ENG 2100](#) & [ELEC ENG 2101](#) or [ELEC ENG 2800](#), [GEOLOGY 2610](#), [MATH 5603](#) or [MATH 5325](#), [MECH ENG 5212](#) or [MECH ENG 5220](#) or [MECH ENG 5229](#) or [MECH ENG 5236](#) or [MECH ENG 5238](#) or [MECH ENG 5282](#), [MIN ENG 3412](#), [PHYSICS 2305](#) or [PHYSICS 2311](#), STAT 5120 or STAT 5346 or STAT 5353.

<sup>4</sup> Metallurgical Core Electives (9 hours): Core Elective I - Introduction to Particulate Materials ([MET ENG 5150](#)) or Corrosion And Its Prevention ([MET ENG 4230](#)), Core Elective II - Steelmaking ([MET ENG 4450](#)) or Steels And Their Treatment ([MET ENG 4320](#)), Core Elective III - Intro to ICME (CER ENG 4410) or Phase Equilibria (CER ENG 3220) or Refractories (CER ENG 5250) or Chemistry and Inherent Properties of Polymers (CHEM 4810).

5	Technical Electives (MET ENG or approved listing)
6	Free Electives (3 hours)-algebra, trigonometry, basic ROTC, and courses considered remedial excluded
7	<del>Free Electives (3 hours)-algebra, trigonometry, basic ROTC, and courses considered remedial excluded</del>

Justification for request      Update curriculum, expand elective offerings

Supporting Documents

Course Reviewer Comments      **sraper (04/18/17 8:45 am):** Mining Eng 3412 should correct with approved CC Form.

Key: 90  
[Preview Bridge](#)



## Program Change Request

### New Program Proposal

Date Submitted: 04/06/17 9:47 pm

## Viewing: **PROPOSED : Latin American Studies for Technical Applications Minor**

File: 252

Last edit: 04/07/17 11:38 am

Changes proposed by: audram

Start Term	Fall 2017
Program Code	PROPOSED
Department	Arts, Languages, & Philosophy
Title	Latin American Studies for Technical Applications Minor

### Program Requirements and Description

The minor in Latin American Studies for Technical Applications is an interdisciplinary minor that allows students to develop deeper understanding of the cultures and languages of Latin America while simultaneously honing and implementing the technical skills they are acquiring in the courses needed for their majors. This minor aims to include students of all levels of Spanish language, including heritage and native speakers.

The minor requires 12 credit hours from an approved list of courses and at least two weeks (14 days) of experience in a Latin American country as part of an S&T-approved program. The lists for Areas 2 and 3 will grow as other faculty on campus develop courses as part of the minor. The minor also aims for breadth of knowledge. Therefore, courses from one area cannot count twice.

Area 1: Spanish Proficiency. To fulfill this, students must complete 6 hours of Spanish at the level of 1180 (Intermediate Spanish) or above. Courses that count towards this area include:

- SPAN 1180 Intermediate Spanish (4)
- SPAN 2000 Special Problems (IND 0-6 credits)
- SPAN 2001 Special Topics (IND 0-6)
- SPAN 2110 Basic Spanish Conversation (2)
- SPAN 2160 Hispanic Culture (3)
- SPAN 2161 Contemporary Latin America (3)
- SPAN 2170 Masterpieces of Hispanic Literature (3)
- SPAN 2180 Intermediate Spanish Composition (3)
- SPAN 3000 Special Problems (0-6)
- SPAN 3001 Special Topics (0-6)
- SPAN 3100 Spanish Translation for Technical Applications
- SPAN 4000 Special Problems (0-6)
- SPAN 4001 Special Topics (0-6)
- SPAN 4302 Phonetics and Phonology of Spanish (3) SPAN 4311 Advanced Spanish Conversation (2)
- SPAN 4311 Advanced Spanish Conversation (2)
- SPAN 4370 Survey of Spanish Literature (3)
- SPAN 4377 Spanish-American Novel and Short Story (3)

Area 2: Technical Applications in Latin America. Students must take one of the following courses, for a total of 3 credits. Other courses will be added to Area 2 as they are developed.

- GEO ENG 5092 International Engineering and Design

### In Workflow

1. [RPHILOSO Chair](#)
2. [CCC Secretary](#)
3. [Arts & Humanities DSCC Chair](#)
4. [Pending CCC Agenda post](#)
5. [CCC Meeting Agenda](#)
6. [Campus Curricula Committee Chair](#)
7. [FS Meeting Agenda](#)
8. [Faculty Senate Chair](#)
9. [Registrar](#)
10. [kristy](#)

### Approval Path

1. 04/06/17 9:50 pm  
Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair
2. 04/07/17 11:22 am  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/07/17 11:39 am  
Petra Dewitt (dewitt): Approved for Arts & Humanities DSCC Chair
4. 04/10/17 2:22 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

- GEO ENG 2407 Geology and Engineering of Ancient and Modern Peru
- SPAN 3100 Spanish Translation for Technical Applications
- SP&MS 3235 Intercultural Communication, when the course is focused on Latin America
- GEO ENG 5556: Renewable Energy Systems, when the course is focused on Latin America
- ChE 5001: Shale Gas and Renewable Energy Alternatives in Argentina

Area 3: General Latin American Studies. Students must take one of the following, for a total of 3 credits. Other courses will be added to Area 3 as they are developed.

- ENG 3001 / TCOM 3001: Costa Rica in Text: Environmental Rhetoric and Current Issues
- HIST 3001 History of Science & Technology in Latin America (3)
- SPAN 2160 Hispanic Culture (3)
- SPAN 2161 Contemporary Latin America (3)

Area 4: Experience abroad in Latin America. Students must spend at least 14 days in a Latin American country as part of an S&T-approved program, such as faculty-led study abroad, a semester- or year-long program at partner institutions, an internship, or EWB. This may be fulfilled via multiple trips to multiple locations within Latin America.

Justification for request	<ul style="list-style-type: none"> <li>* Fulfill award conditions of 2-year U.S. Department of Education grant, awarded to create this new minor.</li> <li>* Provide experiential learning opportunities for students via study abroad, which address both the experiential learning requirement as well as the university's commitment to double the number of students studying abroad by 2020.</li> <li>* Increase the Spanish-language skills areas of our students and faculty to better support current S&amp;T endeavors, especially as they relate to coursework and service trips to Central and South America. Examples include Engineers Without Borders and Miner Challenge.</li> <li>* Enhance students' and faculty members' cultural knowledge of Latin America, as well as their intercultural competency, to better serve our university's mission, and especially our international efforts.</li> <li>* Increase opportunities for students to participate in internships in Latin America.</li> <li>* Increase students' technical knowledge, as it relates to their major discipline, in a way that will provide them with further experience with Latin America.</li> <li>* Build bridges and interdisciplinary, collaborative possibilities for students and faculty across CASB and CEC.</li> <li>* Create study and research opportunities for students and faculty with partner institutions in Latin America.</li> <li>* Provide students with recognition of their developing expertise in Latin America.</li> <li>* Create professional development opportunities for students and faculty.</li> </ul>
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Supporting Documents [Provost Approval\\_LASTA Minor.pdf](#)

Course Reviewer Comments **kristyg (04/07/17 11:21 am):** I have attached the documents for Dr. Merfeld-Langston  
**dewittp (04/07/17 11:38 am):** Added Minor to the title.

## Program Change Request

Date Submitted: 03/22/17 1:13 pm

Viewing: **PSYCH-BA : Psychology BA**

File: 192.15

Last approved: 07/21/15 2:31 pm

Last edit: 03/22/17 1:13 pm

Changes proposed by: weidnern

Catalog Pages [Psychology](#)  
Using this  
Program

Start Term Fall **2017 2015**  
Program Code PSYCH-BA  
Department Psychological Science  
Title Psychology BA

## Program Requirements and Description

### Bachelor of Arts Psychology

A minimum of 120 credit hours is required for a bachelor of arts degree in psychology and an average of at least two grade points per credit hour must be obtained. The psychology B.A. curriculum requires 23 hours of basic skills and concepts. That is, 6 hours of English Composition, 6 hours of western civilization, and 11-16 hours of foreign language. 12 semester hours in humanities must be taken with at least one course taken in each of the three areas of literature (English and American), philosophy, and fine arts (art, music and theater), but not to include studio and performance offerings. A minimum of 12 semester hours is required in social sciences in at least two of the following three areas: economics, political science, and history. A minimum of 12 hours of math and science are required and a minimum of 34 hours are required in psychology. 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.

- [ENGLISH 1120](#) and one additional three hour composition course (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 (11-16 hours).
- Sciences. At least one course taken in biological (biological sciences) and physical (chemistry, geology and geophysics, physics) sciences. At least one statistics course. A laboratory course is required (and a lab offered in engineering also may count at the discretion of the student's major advisor) toward the total requirement (12 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 Sciences. At least two of the following social science areas are to be included: economics, political science, or history (12 hours).

7.	<b>Psychology Courses (34 hours)</b>	
	<b>Required:*</b>	
	<b>General Skills Courses:</b>	
	<a href="#">PSYCH 1100</a>	Introduction to Psychology 1
	<a href="#">PSYCH 1101</a>	General Psychology 3
	<a href="#">PSYCH 2200</a>	Research Methods 4
	<b>Content Courses:</b>	

### In Workflow

- RPSYCHOL Chair**
- CCC Secretary**
- Social Sciences DSCC Chair**
- Pending CCC Agenda post**
- CCC Meeting Agenda**
- Campus Curricula Committee Chair**
- FS Meeting Agenda**
- Faculty Senate Chair**
- Registrar**
- kristyg**

### Approval Path

- 03/23/17 11:21 am  
murray: Approved for RPSYCHOL Chair
- 03/24/17 12:00 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
- 03/24/17 1:10 pm  
Barry Flachsbar (barryf): Approved for Social Sciences DSCC Chair
- 04/10/17 2:22 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

### History

- Aug 4, 2014 by nstone
- Mar 20, 2015 by nstone
- Jun 19, 2015 by nstone
- Jul 21, 2015 by pantaleoa

<a href="#">PSYCH 3310</a>	Developmental Psychology	3
<a href="#">PSYCH 4400</a>	Cognitive Psychology	3
<a href="#">PSYCH 4501</a>	Abnormal Psychology	3
<a href="#">PSYCH 4600</a>	Social Psychology	3
And one of the following 2 courses:		
<a href="#">PSYCH 4410</a>	Neuroscience	3
<a href="#">PSYCH 4411</a>	Sensation and Perception	3
Capstone Course:		
Select three credit hours from the Capstone courses:		
<a href="#">PSYCH 3110</a>	History Of Psychology	3
<a href="#">PSYCH 4010</a>	Seminar	0-6
<a href="#">PSYCH 4099</a>	Undergraduate Research	0-6
<a href="#">PSYCH 4200</a>	Tests and Measurements	3
<a href="#">PSYCH 4590</a>	Health Psychology	3
<a href="#">PSYCH 4994</a>	Psychology in Media	3
<a href="#">PSYCH 4992</a>	Cross-Cultural Psychology	3
<a href="#">PSYCH 4993</a>	Psychology of Gender	3
<a href="#">PSYCH 4990</a>	Internship	0-6
*These required courses total 26 hours.		
Elective Courses:		
Select an additional 8 hours of psychology electives to complete the 34 hour degree requirement.		

8. Psychology (34 hours): Introduction to Psychology (PSYCH 1100), General Psychology (PSYCH 1101), and capstone course (PSYCH 3110, PSYCH 4200, PSYCH 4990, PSYCH 4010, PSYCH 4993, PSYCH 4590, PSYCH 4994, PSYCH 4992, or PSYCH 4099, 3 hours credit). Three additional courses from each of the following two areas of psychology: Sensation and perception, cognitive, learning, neuroscience, developmental, abnormal, social, or personality; Educational, adolescent, human-computer interaction, industrial, human factors, clinical, group dynamics, or organizational. Electives from psychology to complete the 34-hour major 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 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.
9. 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 courses, which also satisfy other requirements. At least nine hours must be beyond the introductory level. A cumulative grade point average of 2.0 must be earned in all course work required in the minor field. At least six hours of work in the minor field must be completed in residence at Missouri S&T.
10. 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.
11. Elective Credits: In consultation with his/her advisor, each student will elect sufficient additional courses to complete a minimum of 120 credit hours.

## Emphasis Areas

Note: The following areas identify courses from which a student may opt to develop an emphasis area. It is not required that students obtain an emphasis specialty within psychology.

Human Resources/Personnel		
<a href="#">PSYCH 4700</a>	Industrial Psychology	3
<a href="#">PSYCH 4600</a>	Social Psychology	3
<a href="#">PSYCH 4601</a>	Group Dynamics	3
<a href="#">PSYCH 4602</a>	Organizational Psychology	3
Human Services		
<a href="#">PSYCH 3311</a>	Psychological & Educational Development Of The Adolescent	3
or <a href="#">PSYCH 3310</a>	Developmental Psychology	
<a href="#">PSYCH 4501</a>	Abnormal Psychology	3
<a href="#">PSYCH 4500</a>	Personality Theory	3
<a href="#">PSYCH 4510</a>	Clinical Psychology	3
Cognitive Neuroscience		
<a href="#">PSYCH 4411</a>	Sensation and Perception	3

<a href="#">PSYCH 3400</a>	Theories Of Learning	3
or <a href="#">PSYCH 4501</a>	Abnormal Psychology	
<a href="#">PSYCH 4400</a>	Cognitive Psychology	3
<a href="#">PSYCH 4410</a>	Neuroscience	3
Usability of Technology		
<a href="#">PSYCH 2300</a>	Educational Psychology	3
<a href="#">PSYCH 3720</a>	Web Design And Development	3
<a href="#">PSYCH 4710</a>	Human Factors	3
<a href="#">PSYCH 4720</a>	Human-Computer Interaction	3
Psychology of Leadership		
<a href="#">PSYCH 4600</a>	Social Psychology	3
or <a href="#">PSYCH 4603</a>	Social Influence: Science and Practice	
<a href="#">PSYCH 4610</a>	Psychology of Leadership in Organizations	3
<a href="#">PSYCH 4993</a>	Psychology of Gender	3
or <a href="#">PSYCH 4601</a>	Group Dynamics	
<a href="#">PSYCH 4602</a>	Organizational Psychology	3

## Bachelor of Arts Psychology (Secondary Education Emphasis Area)

You may earn a B.A. degree in psychology from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with the secondary education emphasis area program. This program can be completed in four academic years and student teaching is arranged with public schools within 30 miles of the Rolla campus.

Students interested in this emphasis area should consult with the advisor for the secondary education emphasis area in the department of psychological science.

In order to successfully complete this emphasis area, students must have at least 22 on the ACT, maintain a cumulative GPA of at least 2.5, and attain at least a 2.5 GPA in **all** psychology **courses taken.** ~~courses.~~ Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet both of 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 course work.

A degree with this emphasis area requires 128 credit hours. The required courses are provided below.

Communications Skills: 9 semester hours		
<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
<a href="#">SP&amp;M S 1185</a>	Principles Of Speech	3
Humanities: 12 semester hours		
Art, Music, or Theatre course		3
Philosophy course		3
Literature course		3
One additional humanities from the above course groups, Foreign Language, or Etymology		3
Social Sciences: 18 semester hours		
<a href="#">HISTORY 1300</a>	American History To 1877	3
or <a href="#">HISTORY 1310</a>	American History Since 1877	
<a href="#">POL SCI 1200</a>	American Government	3
<del><a href="#">POL SCI 2760</a></del>	<del>Course POL SCI 2760 Not Found</del>	<del>3</del>
or <del><a href="#">POL SCI 2210</a></del>	<del>Course POL SCI 2210 Not Found</del>	
or <del><a href="#">POL SCI 3300</a></del>	<del>Principles Of Public Policy</del>	
or <del><a href="#">POL SCI 3760</a></del>	<del>The American Presidency</del>	
<a href="#">POL SCI 3211</a>	<b>American Political Parties</b>	<b>3</b>
or <a href="#">POL SCI 3300</a>	<b>Principles Of Public Policy</b>	
or <a href="#">POL SCI 3760</a>	<b>The American Presidency</b>	

<b>or POL SCI 3763</b>	<b>Contemporary Political Thought</b>	
<a href="#">PSYCH 1101</a>	General Psychology	3
<a href="#">ECON 1100</a>	Principles Of Microeconomics	3
or <a href="#">ECON 1200</a>	Principles Of Macroeconomics	
Geography		3
Natural Science/Mathematics: 13 semester hours		
One course in Physics, Chemistry or Geology		3-4
Mathematics		3
<a href="#">BIO SCI 1113</a>	General Biology	3
<a href="#">STAT 1115</a>	Statistics For The Social Sciences I	3
Professional Requirements: 26 semester hours		
<a href="#">EDUC 1040</a>	Perspectives In Education	2
<a href="#">EDUC 1174</a>	School Organization & Adm For Elementary & Secondary Teachers	2
<b>EDUC 2216</b>	<b>Course EDUC 2216 Not Found</b>	<b>3</b>
<a href="#">EDUC 2251</a>	Historical Foundation Of American Education	3
<b>EDUC 3216</b>	<b>Teaching Reading in Content Area</b>	<b>3</b>
<a href="#">EDUC 3280</a>	Teaching Methods And Skills In The Content Areas	6
<a href="#">EDUC 4298</a>	Student Teaching Seminar	1
<a href="#">PSYCH 2300</a>	Educational Psychology	3
<a href="#">PSYCH 3311</a>	Psychological & Educational Development Of The Adolescent	3
<a href="#">PSYCH 4310</a>	Psychology Of The Exceptional Child	3
Clinical Experience: 16 semester hours		
<a href="#">EDUC 1104</a>	Teacher Field Experience	2
<a href="#">EDUC 1164</a>	Aiding Elementary, Middle And Secondary Schools	2
<a href="#">EDUC 4299</a>	Student Teaching	12
Psychology Degree Requirements: 17 semester hours		
<a href="#">PSYCH 1100</a>	Introduction to Psychology	1
<a href="#">PSYCH 2200</a>	Research Methods	4
<a href="#">PSYCH 3400</a>	Theories Of Learning	3
<a href="#">PSYCH 3310</a>	Developmental Psychology	3
<a href="#">PSYCH 4501</a>	Abnormal Psychology	3
or <a href="#">PSYCH 4500</a>	Personality Theory	
<a href="#">PSYCH 4600</a>	Social Psychology	3
Certification: 17 semester hours		
9 hours of American History from the following:		
<a href="#">HISTORY 3320</a>	Colonial America	
<a href="#">HISTORY 3325</a>	Revolutionary America, 1754-1789	
<a href="#">HISTORY 3340</a>	Age Of Jefferson And Jackson	
<a href="#">HISTORY 3345</a>	Civil War And Reconstruction	
<a href="#">HISTORY 3360</a>	Recent United States History	
<a href="#">HISTORY 3425</a>	History Of The Old South	
<a href="#">HISTORY 3426</a>	History Of The Modern South	
<b>HISTORY 3430</b>	<b>Course HISTORY 3430 Not Found</b>	
<a href="#">HISTORY 3480</a>	History Of Baseball	
<a href="#">HISTORY 3440</a>	20th Century Americans In Combat	
<a href="#">HISTORY 3442</a>	The United States in Vietnam	
<a href="#">HISTORY 3761</a>	U.S. Diplomatic History to World War II	

<b>HISTORY 4435</b>	<b>History of the American West</b>
8 hours of World History from the following:	
<a href="#">HISTORY 1100</a>	Early Western Civilization
<a href="#">HISTORY 1200</a>	Modern Western Civilization
<a href="#">HISTORY 2220</a>	Making Of Modern Britain
<a href="#">HISTORY 2222</a>	The Making Of Modern France
<a href="#">HISTORY 2224</a>	Making Of Modern Russia
<a href="#">HISTORY 2210</a>	European Diplomatic History 1814 - Present
<b>HISTORY 2660</b>	<b>Course HISTORY 2660 Not Found</b>
<a href="#">HISTORY 3120</a>	Ancient Greece
<a href="#">HISTORY 3130</a>	Medieval History I
<a href="#">HISTORY 3135</a>	Medieval History II
<a href="#">HISTORY 3140</a>	History Of Renaissance Thought
<a href="#">HISTORY 3230</a>	Europe In The Age Of The French Revolution And Napoleon
<a href="#">HISTORY 3235</a>	Foundations Of Contemporary Europe 1815-1914
<a href="#">HISTORY 3240</a>	Contemporary Europe
<b>HISTORY 3660</b>	<b>Modern East Asia</b>

Justification for request

We have voted to change the required courses in our curriculum. In our current curriculum, the only required courses are Introduction to Psychology, General Psychology, and Research Methods. Because of this, it is currently possible for students to graduate from our program without have a breadth of knowledge across the field of psychology. For example, it is possible that students may have never taken important content courses that every psychology major should take, such as social psychology, cognitive psychology, developmental psychology, abnormal psychology, and a biological psychology (sensation and perception or neuroscience). These different content areas are not only considered the core of psychology knowledge, but they are the content areas on the Major Field Test and the Psychology GRE. Our proposed changes to the major are to make the courses listed above required for our majors, so students will not have holes in their base of psychology knowledge upon completion of their psychology degree. These changes bring our curriculum more in line with our department's Student Learning Outcomes, the recommendations of the American Psychological Association, and psychology departments across the nation. In addition, students still have 11 additional psychology electives outside of the proposed required courses, so they will still have the freedom to take courses that interest them or give them a depth of knowledge in a particular content area.

Supporting Documents

Course Reviewer Comments

**barryf (10/21/16 8:58 pm):** Rollback: Correct changed course numbers that showed up as "Course Not Found"

**murray (10/25/16 11:31 am):** I corrected class numbers. - S. Murray

**murray (10/25/16 11:34 am):** Change Pol Sci classes

**barryf (10/25/16 3:22 pm):** Rollback: CourseLeaf put courses in wrong category.

**kristyg (02/21/17 9:59 am):** Rollback: I am rolling this back so that Nathan can make the requested changes from Susan Murray.

**kristyg (03/13/17 4:23 pm):** Rollback: Rollback per email.

**barryf (03/22/17 10:44 am):** Rollback: Unable to make minor editing changes.

## Program Change Request

Date Submitted: 03/22/17 1:19 pm

Viewing: **PSYCH-BS : Psychology BS**

File: 193.17

Last approved: 07/21/15 2:38 pm

Last edit: 03/22/17 1:19 pm

Changes proposed by: weidnern

Catalog Pages [Psychology](#)  
Using this  
Program

Start Term Fall **2017 2015**  
Program Code PSYCH-BS  
Department Psychological Science  
Title Psychology BS

## Program Requirements and Description

### Bachelor of Science Psychology

A minimum of 124 credit hours is required for a bachelor of science degree in psychology and a cumulative grade point average of 2.0 must be obtained. These requirements for the B.S. degree are in addition to credit received for basic ROTC.

The psychology bachelor of science curriculum requires six hours of English composition; 23 hours of math, science and computer science; and twelve semester hours in humanities. Specific requirements for the bachelor degree are outlined in the sample program listed below.

- [ENGLISH 1120](#) and [ENGLISH 1160](#) (entering students will normally take [ENGLISH 1120](#) either semester of the first year.) (6 hours)
- A total of 23 hours in biological, physical, (chemistry, geology and geophysics, and physics), and mathematical (mathematics/statistics and computer science or information science & technology) sciences, to include [COMP SCI 1570](#) and [COMP SCI 1580](#); or [COMP SCI 1970](#) and [COMP SCI 1980](#); or [COMP SCI 1971](#) and [COMP SCI 1981](#); or [COMP SCI 1972](#) and [COMP SCI 1982](#); or [IS&T 1551](#) and at least one course taken in the biological and one in the physical sciences. Of the biological and physical science offerings, at least one must be a laboratory course. Engineering courses may, at the discretion of the student's major advisor, also count toward this total requirement. (23 hours)
- 12 hours in humanities and fine arts (literature, philosophy, art, music, or theater). Foreign language courses may count toward fulfilling this requirement. Courses used to satisfy this requirement must be taken in at least two humanities areas. (12 hours)
- 12 hours in at least two social sciences fields outside the major area (economics or history or political science). A course in Modern Western Civilization ([HISTORY 1200](#)), American History To 1877 ([HISTORY 1300](#)) or American History Since 1877 ([HISTORY 1310](#)), or American Government ([POL SCI 1200](#)) must be taken to satisfy the requirement of the state of Missouri (the "Williams Law"), and this course may count toward fulfilling the social sciences requirement. (12 hours)
- 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 courses**, which also satisfy other requirements. At least nine hours must be beyond the introductory level.
- Basic ROTC may be elected in the freshman and sophomore years, but is not creditable toward a degree. Six credit hours of advanced ROTC may be credited toward a degree.
- Elective Credits: In consultation with his/her advisor, each student will elect sufficient additional courses to complete a minimum of 124 credit hours which may include [MATH 1160](#) and one of [MATH 1120](#) or [MATH 1140](#).

#### 8. **Psychology Courses (34 hours)**

**Required:\***

**General Skills Courses:**

[PSYCH 1100](#)

[Introduction to Psychology](#)

1

### In Workflow

- [RPSYCHOL Chair](#)
- [CCC Secretary](#)
- [Social Sciences DSCC Chair](#)
- [Pending CCC Agenda post](#)
- [CCC Meeting Agenda](#)
- [Campus Curricula Committee Chair](#)
- [FS Meeting Agenda](#)
- [Faculty Senate Chair](#)
- [Registrar](#)
- [kristyg](#)

### Approval Path

- 03/23/17 11:21 am  
murray: Approved for RPSYCHOL Chair
- 03/24/17 12:00 pm  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
- 03/24/17 1:10 pm  
Barry Flachsbar (barryf): Approved for Social Sciences DSCC Chair
- 04/10/17 2:22 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

### History

- May 6, 2014 by nstone
- Jul 8, 2014 by pantaleoa
- Jul 8, 2014 by pantaleoa
- Mar 20, 2015 by nstone
- Jun 19, 2015 by nstone
- Jul 21, 2015 by pantaleoa



<a href="#">PSYCH 1101</a>	General Psychology	3
<a href="#">PSYCH 2200</a>	Research Methods	4
<b>Content Courses:</b>		
<a href="#">PSYCH 3310</a>	Developmental Psychology	3
<a href="#">PSYCH 4400</a>	Cognitive Psychology	3
<a href="#">PSYCH 4501</a>	Abnormal Psychology	3
<a href="#">PSYCH 4600</a>	Social Psychology	3
<b>And one of the following 2 courses:</b>		
<a href="#">PSYCH 4410</a>	Neuroscience	3
<a href="#">PSYCH 4411</a>	Sensation and Perception	3
<b>Capstone Course:</b>		
<b>Select three credit hours from the following Capstone courses:</b>		
<a href="#">PSYCH 3110</a>	History Of Psychology	3
<a href="#">PSYCH 4010</a>	Seminar	0-6
<a href="#">PSYCH 4099</a>	Undergraduate Research	0-6
<a href="#">PSYCH 4200</a>	Tests and Measurements	3
<a href="#">PSYCH 4590</a>	Health Psychology	3
<a href="#">PSYCH 4994</a>	Psychology in Media	3
<a href="#">PSYCH 4992</a>	Cross-Cultural Psychology	3
<a href="#">PSYCH 4993</a>	Psychology of Gender	3
<a href="#">PSYCH 4990</a>	Internship	0-6
<b>*These required courses total 26 hours.</b>		
<b>Elective Courses:</b>		
<b>Select an additional 8 hours of psychology electives to complete the 34 hour degree requirement.</b>		

9. **Psychology Requirements:** Introduction to Psychology (PSYCH 1100), General Psychology (PSYCH 1101), Research Methods (PSYCH 2200) and Capstone course PSYCH 3110, PSYCH 4200, PSYCH 4990, PSYCH 4010, PSYCH 4993, PSYCH 4590, PSYCH 4994, PSYCH 4992, or PSYCH 4099, 3 hours credit). Three additional courses from each of the following two areas of Psychology: Sensation and perception, cognitive, learning, neuroscience, developmental, abnormal, social, or personality. Educational, adolescent, human-computer interaction, industrial, human factors, clinical, group dynamics, or organizational. Electives from psychology to complete a requirement of 34 hours. A cumulative grade point average of 2.0 must be earned in all course work taken in the major field. Upper class (3000-level and above) courses completed with grades of "D" may not be included in the **course work for major field without the major field without approval of the approval of advisor and the advisor and chair of the chair of the** department concerned.

## Emphasis Areas

Note: The following areas identify courses from which a student may opt to develop an emphasis area. It is not required that students obtain an emphasis specialty within psychology.

Human Resources/Personnel		
<a href="#">PSYCH 4700</a>	Industrial Psychology	3
<a href="#">PSYCH 4600</a>	Social Psychology	3
<a href="#">PSYCH 4601</a>	Group Dynamics	3
<a href="#">PSYCH 4602</a>	Organizational Psychology	3
Human Services		
<a href="#">PSYCH 3311</a>	Psychological & Educational Development Of The Adolescent	3
or <a href="#">PSYCH 3310</a>	Developmental Psychology	
<a href="#">PSYCH 4501</a>	Abnormal Psychology	3
<a href="#">PSYCH 4500</a>	Personality Theory	3
<a href="#">PSYCH 4510</a>	Clinical Psychology	3
Cognitive Neuroscience		
<a href="#">PSYCH 4411</a>	Sensation and Perception	3
<a href="#">PSYCH 3400</a>	Theories Of Learning	3

or <a href="#">PSYCH 4501</a>	Abnormal Psychology	
<a href="#">PSYCH 4400</a>	Cognitive Psychology	3
<a href="#">PSYCH 4410</a>	Neuroscience	3
Usability of Technology		
<a href="#">PSYCH 2300</a>	Educational Psychology	3
<a href="#">PSYCH 3720</a>	Web Design And Development	3
<a href="#">PSYCH 4710</a>	Human Factors	3
<a href="#">PSYCH 4720</a>	Human-Computer Interaction	3
Psychology of Leadership		
<a href="#">PSYCH 4600</a>	Social Psychology	3
or <a href="#">PSYCH 4603</a>	Social Influence: Science and Practice	
<a href="#">PSYCH 4610</a>	Psychology of Leadership in Organizations	3
<a href="#">PSYCH 4993</a>	Psychology of Gender	3
or <a href="#">PSYCH 4601</a>	Group Dynamics	
<a href="#">PSYCH 4602</a>	Organizational Psychology	3

## Bachelor of Science Psychology (Secondary Education Emphasis Area)

You may earn a B.S. degree in psychology from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with the secondary education emphasis area program. This program can be completed in four academic years and student teaching is arranged with public schools within 30 miles of the Rolla campus.

Students interested in this emphasis area should consult with the advisor for the secondary education emphasis area in the department of psychological science.

In order to successfully complete this emphasis area, students must have at least 22 on the ACT, maintain a cumulative GPA of at least 2.5, and attain at least a 2.5 GPA in **all** psychology **courses taken**. ~~courses~~ Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet both of 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 course work.

A degree in this emphasis area requires 136 credit hours. The required courses are provided below.

Communications Skills: 9 semester hours		
<a href="#">ENGLISH 1120</a>	Exposition And Argumentation	3
<a href="#">ENGLISH 1160</a>	Writing And Research	3
<a href="#">SP&amp;M S 1185</a>	Principles Of Speech	3
Humanities: 12 semester hours		
Art, Music, or Theatre course		3
Philosophy course		3
Literature course		3
One additional humanities from the above course groups, Foreign Language, or Etymology		3-4
Social Sciences: 18 semester hours		
<a href="#">HISTORY 1300</a>	American History To 1877	3
or <a href="#">HISTORY 1310</a>	American History Since 1877	
<a href="#">POL SCI 1200</a>	American Government	3
<a href="#">POL SCI 2760</a>	Course POL SCI 2760 Not Found	3
or <a href="#">POL SCI 2210</a>	Course POL SCI 2210 Not Found	
or <a href="#">POL SCI 3300</a>	Principles Of Public Policy	
or <a href="#">POL SCI 3760</a>	The American Presidency	
<a href="#">POL SCI 3211</a>	American Political Parties	3
or <a href="#">POL SCI 3300</a>	Principles Of Public Policy	
or <a href="#">POL SCI 3760</a>	The American Presidency	
or <a href="#">POL SCI 3763</a>	Contemporary Political Thought	

<a href="#">PSYCH 1101</a>	General Psychology	3
<a href="#">ECON 1100</a>	Principles Of Microeconomics	3
or <a href="#">ECON 1200</a>	Principles Of Macroeconomics	
<b>Geography</b>		<b>3</b>
<b><a href="#">HISTORY 2110</a></b>	<b>World Regional Geography</b>	<b>3</b>
Natural Sciences/Mathematics: 21 semester hours		
One course in Physics, Chemistry or Geology		3-4
Mathematics		3
<a href="#">BIO SCI 1113</a>	General Biology	3
<a href="#">STAT 1115</a>	Statistics For The Social Sciences I	3
<a href="#">COMP SCI 1570</a> & <a href="#">COMP SCI 1580</a>	Introduction To Programming and Introduction To Programming Laboratory	3-4
or <a href="#">COMP SCI 1970</a> & <a href="#">COMP SCI 1980</a>	Basic Scientific Programming and Computer Programming Laboratory	
or <a href="#">COMP SCI 1971</a> & <a href="#">COMP SCI 1981</a>	Introduction To Programming Methodology and Programming Methodology Laboratory	
or <a href="#">COMP SCI 1972</a> & <a href="#">COMP SCI 1982</a>	Introduction to MATLAB Programming and MATLAB Programming Laboratory	
5-6 additional hours of Math &/or Science courses		5-6
Professional Requirements: 26 semester hours		
<a href="#">EDUC 1040</a>	Perspectives In Education	2
<a href="#">EDUC 1174</a>	School Organization & Adm For Elementary & Secondary Teachers	2
<a href="#">EDUC 2216</a>	<b>Course EDUC 2216 Not Found</b>	<b>3</b>
<a href="#">EDUC 2251</a>	Historical Foundation Of American Education	3
<b><a href="#">EDUC 3216</a></b>	<b>Teaching Reading in Content Area</b>	<b>3</b>
<a href="#">EDUC 3280</a>	Teaching Methods And Skills In The Content Areas	6
<a href="#">EDUC 4298</a>	Student Teaching Seminar	1
<a href="#">PSYCH 2300</a>	Educational Psychology	3
<a href="#">PSYCH 3311</a>	Psychological & Educational Development Of The Adolescent	3
<a href="#">PSYCH 4310</a>	Psychology Of The Exceptional Child	3
Clinical Experience: 16 semester hours		
<a href="#">EDUC 1104</a>	Teacher Field Experience	2
<a href="#">EDUC 1164</a>	Aiding Elementary, Middle And Secondary Schools	2
<a href="#">EDUC 4299</a>	Student Teaching	12
Psychology Degree Requirements: 17 semester hours		
<a href="#">PSYCH 1100</a>	Introduction to Psychology	1
<a href="#">PSYCH 2200</a>	Research Methods	4
<a href="#">PSYCH 3400</a>	Theories Of Learning	3
<a href="#">PSYCH 3310</a>	Developmental Psychology	3
<a href="#">PSYCH 4501</a>	Abnormal Psychology	3
or <a href="#">PSYCH 4500</a>	Personality Theory	
<a href="#">PSYCH 4600</a>	Social Psychology	3
Certification: 17 semester hours		
9 hours of American History from the following:		
<a href="#">HISTORY 3320</a>	Colonial America	
<a href="#">HISTORY 3325</a>	Revolutionary America, 1754-1789	
<a href="#">HISTORY 3340</a>	Age Of Jefferson And Jackson	
<a href="#">HISTORY 3345</a>	Civil War And Reconstruction	
<a href="#">HISTORY 3360</a>	Recent United States History	

<a href="#">HISTORY 3425</a>	History Of The Old South
<a href="#">HISTORY 3426</a>	History Of The Modern South
<b>HISTORY 3430</b>	<b>Course HISTORY 3430 Not Found</b>
<a href="#">HISTORY 3480</a>	History Of Baseball
<a href="#">HISTORY 3440</a>	20th Century Americans In Combat
<a href="#">HISTORY 3442</a>	The United States in Vietnam
<a href="#">HISTORY 3761</a>	U.S. Diplomatic History to World War II
<b>HISTORY 4435</b>	<b>History of the American West</b>
8 hours of World History from the following:	
<a href="#">HISTORY 1100</a>	Early Western Civilization
<a href="#">HISTORY 1200</a>	Modern Western Civilization
<a href="#">HISTORY 2220</a>	Making Of Modern Britain
<a href="#">HISTORY 2222</a>	The Making Of Modern France
<a href="#">HISTORY 2224</a>	Making Of Modern Russia
<a href="#">HISTORY 2210</a>	European Diplomatic History 1814 - Present
<b>HISTORY 2660</b>	<b>Course HISTORY 2660 Not Found</b>
<a href="#">HISTORY 3120</a>	Ancient Greece
<a href="#">HISTORY 3130</a>	Medieval History I
<a href="#">HISTORY 3135</a>	Medieval History II
<a href="#">HISTORY 3140</a>	History Of Renaissance Thought
<a href="#">HISTORY 3230</a>	Europe In The Age Of The French Revolution And Napoleon
<a href="#">HISTORY 3235</a>	Foundations Of Contemporary Europe 1815-1914
<a href="#">HISTORY 3240</a>	Contemporary Europe
<b>HISTORY 3660</b>	<b>Modern East Asia</b>

Justification for request

We have voted to change the required courses in our curriculum. In our current curriculum, the only required courses are Introduction to Psychology, General Psychology, and Research Methods. Because of this, it is currently possible for students to graduate from our program without have a breadth of knowledge across the field of psychology. For example, it is possible that students may have never taken important content courses that every psychology major should take, such as social psychology, cognitive psychology, developmental psychology, abnormal psychology, and a biological psychology (sensation and perception or neuroscience). These different content areas are not only considered the core of psychology knowledge, but they are the content areas on the Major Field Test and the Psychology GRE. Our proposed changes to the major are to make the courses listed above required for our majors, so students will not have holes in their base of psychology knowledge upon completion of their psychology degree. These changes bring our curriculum more in line with our department's Student Learning Outcomes, the recommendations of the American Psychological Association, and psychology departments across the nation. In addition, students still have 11 additional psychology electives outside of the proposed required courses, so they will still have the freedom to take courses that interest them or give them a depth of knowledge in a particular content area.

Supporting Documents

Course Reviewer Comments

**barryf (10/21/16 8:59 pm):** Rollback: Fix changed course numbers that showed up as "Course Not Found"

**kristy (02/21/17 9:59 am):** Rollback: I am rolling this back so that Nathan can make

the requested changes from Susan Murray.

**kristyg (03/13/17 4:23 pm):** Rollback: Rollback per email.

**barryf (03/22/17 10:44 am):** Rollback: Unable to make minor editing changes.

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Key: 193

[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 03/02/17 10:34 am

Viewing: **CIV ENG 5001.001 : Wind Engineering**

File: 4405

Last edit: 04/10/17 11:33 am

Changes proposed by: seelyj

Requested	Fall 2017
Effective Change Date	
Department	Civil, Architectural, and Environmental Engineering
Discipline	Civil Engineering (CIV ENG)
Course Number	5001
Topic ID	001
Experimental Title	Wind Engineering
Experimental Abbreviated Course Title	Wind Engineering
Instructors	Dr. Grace Yan
Experimental Catalog Description	Introduction of wind engineering to advanced undergraduate and entry-level graduate students through structural engineering and atmospheric science fundamentals.
Prerequisites	CE 3201 Structural Analysis I with a grade of "C" or better.
Field Trip Statement	
Credit Hours	LEC: 3.0      LAB: 0      IND: 0      RSD: 0      Total: 3.0
Justification for new course:	New material not previously offered in our department supporting ongoing research by faculty and students.  Create co-list: ARCH ENG 5001
Semester(s) previously taught	
Co-Listed Courses:	

### In Workflow

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

### Approval Path

1. 03/24/17 3:14 pm  
Joel Burken (burken):  
Approved for RCIVILEN Chair
2. 03/24/17 4:14 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 04/10/17 11:33 am  
srapper: Approved for Engineering DSCC Chair
4. 04/10/17 2:21 pm  
Kristy Giacomelli (kristyg):  
Approved for Pending CCC Agenda post

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Course Reviewer **sraper (04/10/17 11:33 am)**: Revised course description per W. Schonberg's  
Comments suggestion. He is the rep for the Civ Eng, Arch Eng, and Env Eng programs.

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Key: 4405

[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 03/02/17 8:33 am

Viewing: **CIV ENG 6001.005 : Soil Mechanics for Unsaturated Soils**

File: 4404

Last edit: 04/10/17 11:44 am

Changes proposed by: seelyj

Requested	Fall 2017
Effective Change Date	
Department	Civil, Architectural, and Environmental Engineering
Discipline	Civil Engineering (CIV ENG)
Course Number	6001
Topic ID	005
Experimental Title	Soil Mechanics for Unsaturated Soils
Experimental Abbreviated Course Title	CE6001
Instructors	Dr. Xiong Zhang

Experimental Catalog Description	This is an extension of saturated soil mechanics to solve problems in which soils cannot be considered as saturated such as compacted soils, and expansive and collapsible soils in arid or semi-arid regions. Coverage of unsaturated water flow, consolidation, shear strength, and constitutive modelling of unsaturated soils and their applications.				
Prerequisites	CE 3715 or other introductory courses in soil mechanics. CE 6715 is not required but strongly recommended.				
Field Trip Statement					
Credit Hours	LEC: 3.0	LAB: 0	IND: 0	RSD: 0	Total: 3.0

Justification for new course: New faculty member would like to expand on the knowledge students obtain in CE3715 Fundamental of Geotechnical Engineering, CE5715 Intermediate Soil Mechanics, and CE6715 Advanced Soil Mechanics.

Semester(s) previously taught

### In Workflow

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

### Approval Path

1. 03/24/17 3:14 pm  
Joel Burken (burken):  
Approved for RCIVILEN Chair
2. 03/24/17 4:14 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 04/10/17 11:44 am  
srapper: Approved for Engineering DSCC Chair
4. 04/10/17 2:22 pm  
Kristy Giacomelli (kristyg):  
Approved for Pending CCC Agenda post



Co-Listed

Courses:

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Course Reviewer    **sraper (04/10/17 11:44 am):** Changed course description according to faculty  
Comments            submission and cleaned up prereqs.

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Key: 4404

[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 03/10/17 12:50 pm

Viewing: **CIV ENG 6001.006 : Understanding Rheology of Cement-Based Materials**

File: 4412

Last edit: 04/10/17 2:18 pm

Changes proposed by: seelyj

Requested	Spring 2018
Effective Change Date	
Department	Civil, Architectural, and Environmental Engineering
Discipline	Civil Engineering (CIV ENG)
Course Number	6001
Topic ID	006
Experimental Title	Understanding Rheology of Cement-Based Materials
Experimental Abbreviated Course Title	Understanding Rheology
Instructors	Dr. Dimitri Feys

**Experimental Catalog Description**  
 This class focuses on physical and chemical observations in the field of suspension rheology and how they can be employed to explain the rheological behavior of fresh cement-based materials: cement-paste, mortar and concrete.

**Prerequisites**

**Field Trip Statement**

**Credit Hours**      LEC: 3.0      LAB: 0      IND: 0      RSD: 0      Total: 3.0

**Justification for new course:** This class can be considered as an advanced class in cement-based materials rheology, as it uses concepts of two other graduate level classes (CE 6001: Principles of rheology and CE 6001: Rheology and Self-Consolidating Concrete) to explain why these materials show specific behavior. It focuses also on recently observed complex problems in literature. With this class, graduate students should be able to distinguish different aspects affecting the rheology of cement-based materials, and they should be able to independently plan, execute and interpret the

### In Workflow

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

### Approval Path

1. 03/24/17 3:15 pm  
Joel Burken (burken):  
Approved for RCIVILEN Chair
2. 03/24/17 4:15 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 04/10/17 2:18 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 2:22 pm  
Kristy Giacomelli (kristyg):  
Approved for Pending CCC Agenda post

measurements, without the interference of the research advisor.

Semester(s)

previously taught

Co-Listed

Courses:

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Course Reviewer	<b>sraper (04/10/17 2:18 pm):</b> deleted "graduate level" from course description and
Comments	removed "permission of instructor" from prereq statement.

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Key: 4412  
[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 03/27/17 2:55 pm

Viewing: **COMP ENG 6001.TBD : Advanced Computational Intelligence**

File: 4419

Last edit: 04/10/17 2:40 pm

Changes proposed by: cornss

Requested	Fall 2017
Effective Change Date	
Department	Electrical and Computer Engineering
Discipline	Computer Engineering (COMP ENG)
Course Number	6001
Topic ID	TBD
Experimental Title	Advanced Computational Intelligence
Experimental Abbreviated Course Title	AdvCompIntell
Instructors	Wunsch
Experimental Catalog Description	Advanced topics in computational intelligence, including application areas in evolutionary computation, neural networks, and fuzzy systems. Students will conduct challenging research projects involving advanced concept implementation, statistical analysis and paper writing.
Prerequisites	A "C" or better grade in one of Sys Eng 5211, Elec Eng 5310, or Comp Eng 5310.
Field Trip Statement	
Credit Hours	LEC: 3      LAB: 0      IND: 0      RSD: 0      Total: 3
Justification for new course:	Co-list with Systems Engineering
Semester(s) previously taught	Spring 2017
Co-Listed Courses:	SYS ENG 6001.001 - Advanced Computational Intelligence

### 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. Registrar

### Approval Path

1. 03/27/17 4:25 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 03/28/17 9:25 am  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 2:40 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 2:45 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

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Course Reviewer **sraper (04/10/17 2:40 pm):** small edit in description

Comments

Key: 4419

[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 03/13/17 12:01 pm

Viewing: **COMP SCI 5001.001 : Introduction to Deep Learning**

File: 4410

Last edit: 04/10/17 2:24 pm

Changes proposed by: tauritzd

Requested Fall 2017

Effective Change  
Date

Department Computer Science

Discipline Computer Science (COMP SCI)

Course Number 5001

Topic ID 001

Experimental Introduction to Deep Learning  
Title

Experimental Intro to Deep Learning

Abbreviated  
Course Title

Instructors Ricardo Morales

Experimental Catalog Description This course introduces reinforcement learning and artificial neural networks as the foundations for deep learning and covers deep learning architectures, including deep neural networks, convolutional deep neural networks, deep belief networks and recurrent neural networks. Students will implement course concepts in intensive programming assignments.

Prerequisites A "C" or better grade in both COMP SCI 2500 and MATH 3108.

Field Trip Statement None

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

Justification for new course: Deep learning is a state-of-the-art topic (think of Google's deep learning AlphaGo beating the Go world champion in 2016) and there is strong student demand for a specialized deep learning course. The COMP SCI faculty agree that this important and timely topic is currently not covered by our curriculum and needs to be added.

Semester(s) previously taught n/a

### In Workflow

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

### Approval Path

1. 03/13/17 3:30 pm Sajal Das (sdas): Approved for RCOMPSCI Chair
2. 03/15/17 3:25 pm Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 2:20 pm sraper: Approved for Engineering DSCC Chair
4. 04/10/17 2:23 pm Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 4410

[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 03/13/17 12:01 pm

Viewing: **COMP SCI 5001.002 : Introduction to Machine Learning**

File: 4409

Last edit: 04/10/17 2:24 pm

Changes proposed by: tauritzd

Requested	Fall 2017
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	5001
Topic ID	002
Experimental Title	Introduction to Machine Learning
Experimental Abbreviated Course Title	Intro Machine Learning
Instructors	Zhaozheng Yin
Experimental Catalog Description	This course introduces foundational theories and techniques in machine learning. Topics will include basics of machine learning, learning theory, support vector machine, decision trees and ensemble methods. Students will implement course concepts in intensive programming assignments.
Prerequisites	A "C" or better grade in all of COMP SCI 2500, MATH 3108, and one of STAT 3113, 3115, 3117 or 5643.
Field Trip Statement	None
Credit Hours	LEC: 3      LAB: 0      IND: 0      RSD: 0      Total: 3
Justification for new course:	Machine learning is quickly increasing in importance, but currently is covered as part of a course focused primarily on data mining (COMP SCI 5402). Students have expressed great interest in a stand-alone course and the faculty agree that this is needed.
Semester(s) previously taught	n/a

### In Workflow

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

### Approval Path

1. 03/13/17 3:31 pm  
Sajal Das (sdas):  
Approved for RCOMPSCI Chair
2. 03/15/17 3:25 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 04/10/17 2:21 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 2:23 pm  
Kristy Giacomelli (kristyg):  
Approved for Pending CCC Agenda post



Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 4409

[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 02/13/17 9:27 am

Viewing: **ELEC ENG 5001.005 : Design and Innovation for Engineers**

File: 4397

Last edit: 04/10/17 2:25 pm

Changes proposed by: martins

Requested	Fall 2017
Effective Change Date	
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	5001
Topic ID	005
Experimental Title	Design and Innovation for Engineers
Experimental Abbreviated Course Title	Design Innovation Engrs
Instructors	Dr. Ian Ferguson

**Experimental Catalog Description**  
The course will review design, innovation, and entrepreneurship, with a focus on design, from an engineering perspective and the ability to reduce concepts and ideas to practice. The course will help the student appreciate and understand the contributions that various engineering disciplines and others make in successfully completing a project.

**Prerequisites** Junior or above standing.

**Field Trip Statement** N/A

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

**Justification for new course:** The creative process in design and innovation can only be successful if they can be reduced to some type of practice or product. This course will provide the student with a toolkit to be successful in the arena. Case studies will be used to understand the methods and constraints associated with realistic design practices. The student will understand how non-engineering factors affect success.

Create co-list: COMP ENG 5001

### 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. Registrar

### Approval Path

1. 02/22/17 7:08 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 02/27/17 10:06 am  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 03/14/17 2:51 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 2:22 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

Semester(s) N/A  
previously taught

Co-Listed  
Courses:

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Course Reviewer **sraper (03/14/17 2:51 pm):** prereq edit as suggested by DSCC  
Comments

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Key: 4397  
[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 03/27/17 2:52 pm

Viewing: **ELEC ENG 6001.TBD : Advanced Computational Intelligence**

File: 4418

Last edit: 03/29/17 9:57 am

Changes proposed by: cornss

Requested	Fall 2017
Effective Change Date	
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	6001
Topic ID	TBD
Experimental Title	Advanced Computational Intelligence
Experimental Abbreviated Course Title	AdvCompIntell
Instructors	Wunsch, Corns
Experimental Catalog Description	Advanced topics in computational intelligence, including application areas in evolutionary computation, neural networks, and fuzzy systems. students will conduct challenging research projects involving advanced concept implementation, statistical analysis and paper writing.
Prerequisites	A "C" or better grade in one of Sys Eng 5211, Elec Eng 5310, or Comp Eng 5310.
Field Trip Statement	
Credit Hours	LEC: 3      LAB: 0      IND: 0      RSD: 0      Total: 3
Justification for new course:	Co-list course with Systems Engineering
Semester(s) previously taught	Spring 2017
Co-Listed Courses:	SYS ENG 6001.001 - Advanced Computational Intelligence COMP ENG 6001.TBD - Advanced Computational Intelligence

### 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. Registrar

### Approval Path

1. 03/27/17 4:25 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 03/28/17 9:25 am  
Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 04/10/17 3:46 pm  
srafer: Approved for Engineering DSCC Chair
4. 04/10/17 3:46 pm  
Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post

Course Reviewer  
Comments

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Key: 4418

[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 02/20/17 5:27 pm

Viewing: **GEO ENG 5001.TBD : Research Methods in Groundwater and Surface Water**

File: 4399

Last edit: 02/20/17 5:27 pm

Changes proposed by: grotekr

Requested	Fall 2017
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geological Engineering (GEO ENG)
Course Number	5001
Topic ID	TBD
Experimental Title	Research Methods in Groundwater and Surface Water
Experimental Abbreviated Course Title	Water Research Methods
Instructors	Katherine Grote
Experimental Catalog Description	Students will conduct research experiments that address water quality or quantity issues in Missouri. Topics will include literature review, experimental design, site selection, field techniques/data acquisition, laboratory methods, data analysis, and dissemination of results. Statistical analysis of results will be emphasized.
Prerequisites	Geo Eng 1150, 3.0 GPA, permission of the instructor
Field Trip Statement	Field trips will be required.
Credit Hours	LEC: 2      LAB: 1      IND: 0      RSD: 0      Total: 3

Justification for new course: This course offers students an opportunity to become involved in undergraduate research of locally relevant projects that promote environmental restoration and sustainability. The course also provides experiential learning opportunities and can help promote university interests as students participate in research to improve the community. Research will be conducted with assistance from the Missouri

### 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. Registrar

### Approval Path

1. 02/20/17 5:41 pm  
Francisca Oboh-Ikuenobe (ikuenobe):  
Approved for RGEOSENG Chair
2. 02/21/17 3:12 pm  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 03/27/17 1:31 pm  
srapper: Approved for Engineering DSCC Chair
4. 04/10/17 2:22 pm  
Kristy Giacomelli (kristyg):  
Approved for Pending CCC Agenda post

Department of Natural Resources and the United States Geological Survey, so students will also gain experience and build professional contacts in these agencies. No course is currently available that provides these experiences for undergraduate students.

Semester(s)          none

previously taught

Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 4399

[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 02/16/17 5:18 pm

Viewing: **PET ENG 6001.006 : Advanced Digital Applications in Petroleum Engineering**

File: 4398

Last edit: 04/10/17 2:27 pm

Changes proposed by: sahc55

Requested	Fall 2017
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Petroleum Engineering (PET ENG)
Course Number	6001
Topic ID	006
Experimental Title	Advanced Digital Applications in Petroleum Engineering
Experimental Abbreviated Course Title	Advanced Dig. Petr Apps.
Instructors	Steven Hilgedick

**Experimental Catalog Description**  
 Applications of Windows-based Visual Basic solutions to petroleum engineering problems including, selected topics in Reservoir, Drilling, and Production Engineering and well logging, each of which highlight new methods in Visual Basic. Course also includes advanced methods for research applications.

**Prerequisites**

**Field Trip Statement**

<b>Credit Hours</b>	LEC: 3.0	LAB: 0	IND: 0	RSD: 0	Total: 3.0
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**Justification for new course:**  
 This course will be offered along with Pet Eng 4111, and offer grad students a chance to learn Visual Basic coding beyond Pet Eng 4111, geared toward applications in current and future research topics. Course will also increase the 6xxx level offerings for students required to be enrolled in 3.0 credit hours during the summer semester.

**Semester(s)** NA (Pet Eng 4111 was previously taught in SS 2016)

- 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. Registrar

- Approval Path**
1. 02/16/17 5:19 pm Francisca Oboh-Ikuenobe (ikuenobe): Approved for RGEOSENG Chair
  2. 02/21/17 3:12 pm Kristy Giacomelli (kristyg): Approved for CCC Secretary
  3. 03/14/17 2:53 pm sraoper: Approved for Engineering DSCC Chair
  4. 04/10/17 2:22 pm Kristy Giacomelli (kristyg): Approved for Pending CCC Agenda post



previously taught

Co-Listed

Courses:

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Course Reviewer **sraper (02/24/17 9:09 am):** Changed effective date. Is no prereqs appropriate?

Comments Potential edits in catalog description.

**sraper (03/14/17 2:53 pm):** Edits as suggested by DSCC for improved clarity.

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Key: 4398  
[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 04/11/17 1:25 pm

Viewing: **PET ENG 6001.TBD : Flow Through Porous Media**

File: 4422

Last edit: 04/11/17 1:25 pm

Changes proposed by: reflori

Requested	Summer 2017
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Petroleum Engineering (PET ENG)
Course Number	6001
Topic ID	TBD
Experimental Title	Flow Through Porous Media
Experimental Abbreviated Course Title	Flow Porous Media
Instructors	R Flori

Experimental Catalog Description	Detailed description of porous media and its properties, mathematical description of steady, pseudosteady, and transient flow through media with various geometries.				
Prerequisites	Pet Eng 3520 or consent of instructor.				
Field Trip Statement					
Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3

Justification for new course: Most petroleum engineering departments have this important course. We used to have it years ago, but it was lost. We're restoring it to our catalog.

Semester(s) previously taught  
Co-Listed Courses:

- 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. Registrar

- Approval Path
1. 04/11/17 1:44 pm  
Francisca Oboh-Ikuenobe (ikuenobe): Approved for RGEOSENG Chair
  2. 04/13/17 2:32 pm  
Lahne Black (lahne): Approved for CCC Secretary
  3. 04/18/17 8:46 am  
srafer: Approved for Engineering DSCC Chair
  4. 04/20/17 4:12 pm  
Lahne Black (lahne): Approved for Pending CCC Agenda post

Course Reviewer  
Comments

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Key: 4422  
[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 04/11/17 12:48 pm

Viewing: **PET ENG 6001.TBD : Numerical Methods for Reservoir Simulation**

File: 4420

Last edit: 04/11/17 12:48 pm

Changes proposed by: reflori

Requested            Fall 2017

Effective Change  
Date

Department        Geosciences and Geological and Petroleum  
Engineering

Discipline         Petroleum Engineering (PET ENG)

Course Number    6001

Topic ID            TBD

Experimental  
Title                Numerical Methods for Reservoir Simulation

Experimental  
Abbreviated  
Course Title        Num Methods for Res Sim

Instructors

Peyman Heidari

Experimental  
Catalog  
Description        Step-by-step process of building a reservoir simulator, including formulation of the governing equations, numerical methods to solve partial differential equations, spacial and temporal discretization, numerical solution of systems of equations, testing of the reservoir simulator, sensitivity analysis, qualitative and quantitative analysis, coding.

Prerequisites      Pet Eng 4621 or consent of instructor.

Field Trip  
Statement

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

Justification for  
new course:        Petroleum Engineering needs additional graduate level courses, especially in this area involving programming, numerical analysis, and the details of building a reservoir simulator.

Semester(s)        First time offered. Years ago S&T had this course, but it fell out of the catalog at

### 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. Registrar

### Approval Path

1. 04/11/17 1:43 pm  
Francisca Oboh-Ikuenobe (ikuenobe): Approved for RGEOSENG Chair
2. 04/13/17 2:32 pm  
Lahne Black (lahne): Approved for CCC Secretary
3. 04/18/17 8:43 am  
srafer: Approved for Engineering DSCC Chair
4. 04/20/17 4:12 pm  
Lahne Black (lahne): Approved for Pending CCC Agenda post

previously taught some point.

Co-Listed

Courses:

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Course Reviewer **lahne (04/06/17 11:40 am)**: Rollback: This course must be successfully offered twice as an experimental course (i.e. PET ENG 5001) before it is eligible for a permanent number. Please edit the form to change the catalog number from 5641 to an experimental number.

Comments **lahne (04/11/17 8:41 am)**: Rollback: This course must be successfully offered twice as an experimental course (i.e. PET ENG 5001) before it is eligible for a permanent number. Please edit the form to change the catalog number from 5641 to an experimental number.

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Key: 4420  
[Preview Bridge](#)

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 02/24/17 3:18 pm

Viewing: **ENGLISH 2411 : Costa Rica in Text**

File: 4401

Last edit: 02/24/17 3:18 pm

Changes proposed by: kswenson

Requested	Fall 2017
Effective Change Date	
Department	English and Technical Communication
Discipline	English (ENGLISH)
Course Number	2411
Title	Costa Rica in Text
Abbreviated Course Title	Costa Rica in Text

**Catalog Description** Three-week study abroad trip in Costa Rica (late May-early June) in which students conduct primary research on environmental rhetoric. Assignments include analytical projects based on interviews, visual evidence, archival research, and first-hand observations.

**Prerequisites** English 1120

**Field Trip Statement**

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

**Required for Majors** No

**Elective for Majors** Yes

**Justification for new course:** This course is to be part of the new LASTA minor. Dolan and Northcut were awarded a \$5000 CERTI grant to develop it for the minor.

**Semesters previously offered as an experimental course** N/A

### In Workflow

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

### Approval Path

1. 02/24/17 3:19 pm  
Kristine Swenson (kswenson):  
Approved for RENG LISH Chair
2. 02/27/17 10:06 am  
Kristy Giacomelli (kristyg):  
Approved for CCC Secretary
3. 02/27/17 7:36 pm  
Petra Dewitt (dewittp):  
Approved for Arts & Humanities DSCC Chair
4. 03/14/17 10:13 am

Co-Listed TCH COM 2411 - **Course Not Found**

Courses:

Course Reviewer

Comments

Kristy Giacomelli

(kristyg):

Approved for

Pending CCC

Agenda post

Key: 4401

[Preview Bridge](#)

# Course Inventory Change Request

A deleted record cannot be edited

## Course Deactivation Proposal

Date Submitted: 12/24/16 10:17 am

Viewing: **MET ENG 1210 : Chemistry Of Materials**

File: 1974.1

Last edit: 01/25/17 3:38 pm

Changes proposed by: smiller

Catalog Pages referencing this course	<a href="#">Freshman Engineering Program</a>
Other Courses referencing this course	In The Prerequisites: <a href="#">CER ENG 2240 : Applied Glass Forming</a> <a href="#">CER ENG 3220 : Phase Equilibria</a> <a href="#">CER ENG 3230 : Thermodynamics of Materials</a> <a href="#">CHEM 4810 : Chemistry And Inherent Properties Of Polymers</a> <a href="#">CHEM 5810 : Introduction to Polymeric Materials</a> <a href="#">CHEM 5850 : Introduction to Coating Chemistry</a> <a href="#">CHEM ENG 5320 : Introduction to Nanomaterials</a> <a href="#">MET ENG 3220 : Introduction To Extractive Metallurgy</a> <a href="#">MET ENG 3330 : Metallurgical Thermodynamics I</a> <a href="#">MS&amp;E 4810 : Chemistry And Inherent Properties Of Polymers</a> <a href="#">MS&amp;E 5810 : Introduction to Polymeric Materials</a> <a href="#">MS&amp;E 5850 : Introduction to Coating Chemistry</a>

Requested Effective Change Date	Fall <b>2017</b> <del>2014</del>
Department	Materials Science & Engineering
Discipline	Metallurgical Engineering (MET ENG)
Course Number	1210
Title	Chemistry Of Materials
Abbreviated Course Title	Chemistry Of Materials

Catalog Description	Basic Inorganic Chemistry of Materials. Topics will include chemical properties, structure and bonding of solids, energy, enthalpy, entropy, thermochemistry, kinetics and rate processes. Application of chemistry principles to materials engineering
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### 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. Ishelton
11. Peoplesoft

### Approval Path

1. 12/24/16 1:03 pm mjokeefe: Approved for RMATSENG Chair
2. 01/12/17 5:58 pm Kristy Giacomelli (kristyg): Approved for CCC Secretary
3. 01/25/17 3:38 pm sraper: Approved for Engineering DSCC Chair
4. 02/14/17 11:20 am Kristy Giacomelli (kristyg): Approved for Pending CCC



Agenda post

through flowsheeting, reactor design, materials/metals processing and the environment.

Prerequisites "C" or better grade in Chem 1310.

Field Trip  
Statement

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

Required for  
Majors              No

Elective for  
Majors              No

Justification for  
change:              The Met Eng and Cer Eng BS program curricula are being revised to include CHEM 1320 instead of Met 1210, thus course is no longer needed.

Semesters  
previously  
offered as an  
experimental  
course

Co-Listed  
Courses:

Course Reviewer      **sraper (01/25/17 3:38 pm):** approve deactivation, but understand DC will have to be  
Comments              changed.