



**Minutes of the Campus Curricula Committee Meeting**

**December 7, 2021**

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

**(For Faculty Senate Meeting of January 20, 2022)**

**Attendees:** Steve Raper, Petra Dewitt, Katie Shannon, Michael Davis, Kyle Perry, Cecil Eng Huang Chua, Michael Gosnell, Kristy Giacomelli-Feys, Marita Raper

The following curriculum forms were discussed and approved:

**Course Change Forms:**

File: 132.1      BIO SCI 2223 : General Genetics  
File: 4828      BIO SCI 4369 : Freshwater Ecology Laboratory  
File: 4835      BIO SCI 5443 : Population and Conservation Genetics  
File: 92.3      ENG MGT 1210 : Economic Analysis of Engineering Projects  
File: 1393.2    ENG MGT 2310 : Introduction to System Engineering  
File: 4833      ENGLISH 3236 : Tolkien & Lewis  
File: 4838      ENV SCI 1110 : Environmental Science Freshman Seminar  
File: 4839      ENV SCI 4028 : Environmental Science Senior Capstone  
File: 4605.4    GEOLOGY 6100 : Advanced Professional Geoscience Skills  
File: 1126.5    GEOLOGY 6611 : Advanced Palynology  
File: 931.2      MECH ENG 4480 : Control System Laboratory

**Program Change Forms:**

File: 382      PROPOSED : Environmental Sciences BS  
File: 385      PROPOSED : Foundations of Supply Chain Integration Systems CT  
File: 383      PROPOSED : Modeling and Simulation for Decision Systems CT  
File: 384      PROPOSED : Systems of Human Capital Management CT

**Experimental Course forms:**

File: 4832      COMP SCI 6001.008 : High-Performance Computing  
File: 4830      COMP SCI 6001.009 : Industrial Control Systems for Computer Scientists  
File: 4837      MECH ENG 5001.006 : Applied Computational Fluid Dynamics  
File: 4829      MS&E 5001.004 : Scientific Challenges to Hypersonic Flight



**New Business:**

CCC Meetings will remain on the designated Tuesdays from 815-915am for the Spring 2022 semester.

The meeting adjourned at 8:26 am.

A handwritten signature in black ink that reads "Stephen A. Raper".

---

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

# Course Change Request

Date Submitted: 11/09/21 9:37 am

Viewing: **BIO SCI 2223 : General Genetics**

File: 132.1

Last edit: 12/07/21 9:03 am

Changes proposed by: shannonk

## Programs

referencing this  
course

[PRE-MED-MI: Pre-Medicine Minor](#)

[TCH COM-BS: Technical Communication BS](#)

[BIOINFO-MI: Bioinformatics Minor](#)

[BIO SC-BA: Biological Sciences BA](#)

[BIO SC-BS: Biological Sciences BS](#)

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

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

[BIOMED-MI: Biomedical Engineering Minor](#)

[EDUC-BS: Education BS](#)

[PROPOSED: Biological Sciences BS with Emphasis area in  
Medical Laboratory Scientist](#)

[PROPOSED: Environmental Sciences, BS](#)

## Other Courses

referencing this  
course

In The Prerequisites:

[BIO SCI 3233 : Evolution](#)

[BIO SCI 4323 : Molecular Genetics](#)

[BIO SCI 4393 : Immunology](#)

[BIO SCI 4666 : Nanobiotechnology](#)

## In Workflow

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

## Approval Path

1. 11/09/21 9:46 am  
David Duvernell  
(duvernell):  
Approved for  
RBIOLSCI Chair
2. 11/09/21 10:23  
am  
Marita Tibbetts  
(tibbettsmg):

BIO SCI 6666 : Advanced Nanotechnology in Biomedicine

Requested **Fall 2022** ~~08/14/2018~~  
 Effective Change  
 Date  
 Department Biological Sciences  
 Discipline Biological Sciences (BIO SCI)  
 Course Number 2223  
 Title

Approved for CCC  
 Secretary  
 3. 11/12/21 3:07 pm  
 Katie Shannon  
 (shannonk):  
 Approved for  
 Sciences DSCC  
 Chair  
 4. 11/15/21 2:36 pm  
 Marita Tibbetts  
 (tibbettsmg):  
 Approved for  
 Pending CCC  
 Agenda post  
 5. 12/07/21 9:03 am  
 Marita Tibbetts  
 (tibbettsmg):  
 Approved for CCC  
 Meeting Agenda  
 6. 12/07/21 9:04 am  
 Stephen Raper  
 (sraper):  
 Approved for  
 Campus Curricula  
 Committee Chair

## General Genetics

Abbreviated General Genetics  
 Course Title

## Catalog

## Description

The study of the principles of heredity and reasons for variation in living organisms. Includes Mendelian principles, molecular, population, and evolutionary genetics with examples from a diverse array of species.

## Prerequisites

Bio Sci **1113**, **Bio Sci 1173**, ~~1113~~ or **Bio Sci 1213**.

## Field Trip

## Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Required for

**Yes** ~~No~~

Majors

Elective for

No

Majors

## Justification for

change:

adding BIO SCI 1173 at prerequisite. Students pursuing new Environmental Science BS will not have Bio Sci 113 or 1213 but will take 1173 before Genetics

## Semesters

previously

offered as an

experimental

course

## Co-Listed

Courses:

Course Reviewer

Comments

Key: 132

[Preview Bridge](#)

# Course Change Request

## New Course Proposal

Date Submitted: 09/30/21 11:42 am

Viewing: **BIO SCI 4369 : Freshwater Ecology**

## Laboratory

File: 4828

Last edit: 10/11/21 9:04 am

Changes proposed by: niyogid

Requested	Fall 2022
Effective Change Date	
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	4369
Title	

### In Workflow

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

### Approval Path

1. 09/30/21 12:34 pm  
David Duvernell (duvernell):  
Approved for  
RBIOLSCI Chair
2. 09/30/21 3:16 pm  
Marita Tibbetts (tibbettsmg):

- Approved for CCC  
Secretary
3. 10/11/21 9:04 am  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC  
Chair
4. 11/15/21 2:37 pm  
Marita Tibbetts  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 12/07/21 9:04 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
6. 12/07/21 9:04 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair

## Freshwater Ecology Laboratory

Abbreviated            Freshwater Eco Lab  
Course Title

### Catalog

#### Description

This lab course will include fieldtrips and lab work to collect and process samples related to the ecology of lakes and rivers. Samples of water and life will be collected from several aquatic ecosystems in Missouri, and analyzed in the lab for water

quality, biological communities, and ecosystem processes.

#### Prerequisites

Preceded or accompanied by Bio Sci 4363.

#### Field Trip

#### Statement

Students can drive their own vehicles to field sites, carpool with other students, or ride with instructors if needed.

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

Total: 1

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

Majors

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

Majors

#### Justification for

new course:

This lab course has been offered twice as an experimental class (BioSci 4001), and can be granted a permanent number now. It has had good enrollment in its first two offerings. The BioSci department is trying to increase our lab offerings to enhance experiential learning.

#### Semesters

previously

offered as an

experimental

course

Fall 2020, Fall 2021

#### Co-Listed

Courses:

#### Course Reviewer

#### Comments

**tibbettsmg (09/30/21 3:14 pm):** Enrollment: FS21:12, FS20: 14.



[Preview Bridge](#)

# Course Change Request

## New Course Proposal

Date Submitted: 11/09/21 10:24 am

Viewing: **BIO SCI 5443 : Population and Conservation Genetics**

File: 4835

Last edit: 11/09/21 10:33 am

Changes proposed by: niyogid

Requested	Fall 2022
Effective Change Date	
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	5443
Title	

### In Workflow

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

### Approval Path

1. 11/04/21 4:05 pm  
David Duvernell  
(duvernell):  
Approved for  
RBIOLSCI Chair
2. 11/08/21 1:55 pm  
Marita Tibbetts  
(tibbettsmg):  
Rollback to

Initiator

3. 11/09/21 10:31 am  
David Duvernell  
(duverneld):  
Approved for  
RBIOLSCI Chair
4. 11/09/21 10:34 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Secretary
5. 11/12/21 3:07 pm  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC  
Chair
6. 11/15/21 2:38 pm  
Marita Tibbetts  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
7. 12/07/21 9:04 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
8. 12/07/21 9:04 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula

## Population and Conservation Genetics

Abbreviated            Pop and Cons Genetics  
Course Title

## Catalog

## Description

An overview of population genetics theory with a focus on evolutionary processes (mutation, natural selection, genetic drift, inbreeding, recombination and gene flow), and a review of molecular data collection and analysis methods. Emphasis will be placed on application to conservation genetics with a review of examples from current literature.

## Prerequisites

Bio Sci 2223 and Bio Sci 3233.

## Field Trip

## Statement

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

Total: 3

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

## Majors

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

## Majors

## Justification for

new course:

This course has been offered twice as an experimental class (5001). We now wish to give it a permanent number.

## Semesters

previously

offered as an

experimental

course

Fall 2018 and Fall 2020

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (11/08/21 1:55 pm):** Rollback: The EC was approved and offered as a 5xxx level course. You can propose a 5xxx permanent course, but it cannot be used to consider the creation of 2 separate permanent courses. MT

**tibbettsmg (11/09/21 10:33 am):** Successful enrollment as an EC. Fall 18: 16 enrolled; Fall 20: 15 enrolled. mt

Key: 4835

[Preview Bridge](#)

# Course Change Request

Date Submitted: 10/19/21 2:14 pm

Viewing: **ENG MGT 1210 : Economic Analysis of Engineering Projects**

File: 92.3

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

Last edit: 10/19/21 2:19 pm

Changes proposed by: sraper

Programs  
referencing this  
course

[ARC ENG-BS: Architectural Engineering BS](#)

[CV ENG-BS: Civil Engineering BS](#)

[GE ENG-BS: Geological Engineering BS](#)

[ENG MG-BS: Engineering Management BS](#)

[MC ENG-BS: Mechanical Engineering BS](#)

Other Courses  
referencing this  
course

In The Prerequisites:

[CIV ENG 5452 : Pre-Project Planning and Feasibility Studies](#)

[ENG MGT 2211 : Engineering Accounting and Finance](#)

[ENG MGT 6211 : Advanced Financial Management](#)

[ENG MGT 6212 : Investment](#)

[ENG MGT 6213 : Financial Engineering](#)

[ENG MGT 6215 : Financial Risk Management](#)

[EXP ENG 5514 : Display Fireworks Manufacturing](#)

[SYS ENG 6612 : Investment](#)

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. CAT entry
11. Peoplesoft

Approval Path

1. 10/19/21 2:15 pm  
Suzanna Long  
(longsuz):  
Approved for  
RENGMNGT Chair
2. 10/19/21 2:20 pm  
Marita Tibbetts  
(tibbettsmg):

[SYS ENG 6613 : Financial Engineering](#)

[SYS ENG 6615 : Financial Risk Management](#)

Requested **Fall 2022** ~~08/17/2015~~  
 Effective Change  
 Date  
 Department Engineering Management and Systems Engineering  
 Discipline Engineering Management (ENG MGT)  
 Course Number 1210  
 Title

- Approved for CCC Secretary
3. 11/12/21 9:59 am  
Stephen Raper (sraper):  
Approved for Engineering DSCC Chair
  4. 11/15/21 2:39 pm  
Marita Tibbetts (tibbettsmg):  
Approved for Pending CCC Agenda post
  5. 12/07/21 9:04 am  
Marita Tibbetts (tibbettsmg):  
Approved for CCC Meeting Agenda
  6. 12/07/21 9:05 am  
Stephen Raper (sraper):  
Approved for Campus Curricula Committee Chair

### History

1. Feb 9, 2015 by sraper (92.1)

### Economic Analysis of Engineering Projects

Abbreviated Econ Analysis of Engr Projects  
 Course Title

Catalog

## Description

Engineering project analysis from an engineering economics perspective. Topics include: interest, equivalent worth, comparing alternatives, rate of return methods, depreciation and taxes, inflation and price changes, benefit-cost analysis and risk analysis.

## Prerequisites

~~Math 1214.~~

## Field Trip

## Statement

Credit Hours

LEC: 2

LAB: 0

IND: 0

RSD: 0

Total: 2

Required for

Yes

Majors

Elective for

No

Majors

## Justification for

change:

Current instructor has determined the previous prerequisite was not necessary for the material covered in the course.

## Semesters

previously

offered as an

experimental

course

## Co-Listed

Courses:

## Course Reviewer

## Comments

**tibbettsmg (10/19/21 2:19 pm):** updated effective term to FS 22. mt





# Course Change Request

Date Submitted: 10/19/21 2:19 pm

Viewing: **ENG MGT 2310 : Introduction to System Engineering**

File: 1393.2

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

Last edit: 12/07/21 9:04 am

Changes proposed by: sraper

Programs  
referencing this  
course

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

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

[ENG MG-BS: Engineering Management BS](#)

Requested **Fall 2022** ~~08/17/2015~~  
Effective Change  
Date

Department Engineering Management and Systems Engineering

Discipline Engineering Management (ENG MGT)

Course Number 2310

Title

In Workflow

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

Approval Path

1. 10/19/21 2:19 pm  
Suzanna Long  
(longsuz):  
Approved for  
RENGMNGT Chair
2. 10/19/21 2:22 pm  
Marita Tibbetts  
(tibbettsmg):

Approved for CCC  
Secretary

3. 11/12/21 9:59 am

Stephen Raper

(sraper):

Approved for  
Engineering DSCC  
Chair

4. 11/15/21 2:40 pm

Marita Tibbetts

(tibbettsmg):

Approved for  
Pending CCC  
Agenda post

5. 12/07/21 9:04 am

Marita Tibbetts

(tibbettsmg):

Approved for CCC  
Meeting Agenda

6. 12/07/21 9:05 am

Stephen Raper

(sraper):

Approved for  
Campus Curricula  
Committee Chair

### History

1. Feb 9, 2015 by  
sraper (1393.1)

Introduction to System Engineering

Abbreviated Intro System Eng

Course Title

Catalog

## Description

Provide an understanding of systems engineering and tools to manage system design, construction, and operation. Topics include systems thinking, modeling and simulation of systems, uncertainty in engineering, risk, and decision making in certain and uncertain environments.

## Prerequisites

Math **1208**, ~~1208~~ or Math **1214**, or Math **1211**. ~~1214~~.

## Field Trip

## Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Required for

Yes

Majors

Elective for

No

Majors

## Justification for

change:

To account for the new Math 1211 course.

## Semesters

previously

offered as an

experimental

course

**deadline missed for Spring 22. updated effective term to FS 22 and formatted prerequisites. mt**

## Co-Listed

Courses:

Course Reviewer

Comments

[Preview Bridge](#)

# Course Change Request

## New Course Proposal

Date Submitted: 10/29/21 11:17 am

Viewing: **ENGLISH 3236 : Tolkien & Lewis**

File: 4833

Last edit: 10/29/21 1:00 pm

Changes proposed by: reardond

Requested                      Fall 2022

Effective Change

Date

Department                    English and Technical Communication

Discipline                     English (ENGLISH)

Course Number                3236

Title

### In Workflow

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

### Approval Path

1. 10/28/21 3:06 pm  
Kristine Swenson (kswenson):  
Approved for  
RENGLISH Chair
2. 10/29/21 11:04 am  
Marita Tibbetts

- (tibbettsmg):  
Rollback to  
Initiator
3. 10/29/21 12:43  
pm  
Kristine Swenson  
(kswenson):  
Approved for  
RENGLISH Chair
4. 10/29/21 1:01 pm  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Secretary
5. 10/29/21 1:46 pm  
Petra Dewitt  
(dewittp):  
Approved for Arts  
& Humanities  
DSCC Chair
6. 11/15/21 2:41 pm  
Marita Tibbetts  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
7. 12/07/21 9:04 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
8. 12/07/21 9:05 am  
Stephen Raper  
(sraper):  
Approved for

Tolkien &amp; Lewis

Abbreviated Tolkien &amp; Lewis

Course Title

## Catalog

## Description

This course offers a comprehensive understanding of the literary works of J.R.R. Tolkien and C.S. Lewis by exploring their fictional worlds through the cultural and historical contexts in which they were created.

## Prerequisites

English 1120.

## Field Trip

## Statement

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

Total: 3

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

Majors

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

Majors

## Justification for

new course:

Course successfully taught 3x as English 3001--Lives & Works of J.R.R. Tolkien & C.S. Lewis

Semesters

previously

offered as an

experimental

course



FS 2021

SP 2021

SP 2020

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (10/29/21 11:04 am):** Rollback: rollback for additional changes. mt

**tibbettsmg (10/29/21 1:00 pm):** effective date changed to FS22. Enrollment FS21:

18, SP21: 18, SP20: 15. mt

Key: 4833

[Preview Bridge](#)

# Course Change Request

## New Course Proposal

Date Submitted: 11/11/21 12:41 pm

Viewing: **ENV SCI 1110 : Environmental Science**

## Freshman Seminar

File: 4838

Last edit: 11/11/21 1:17 pm

Changes proposed by: shannonk

Programs  
referencing this  
course

[PROPOSED: Environmental Sciences, BS](#)

Requested	Fall 2022
Effective Change	
Date	
Department	Biological Sciences
Discipline	Environmental Sciences (ENV SCI)
Course Number	1110
Title	

### In Workflow

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

### Approval Path

1. 11/11/21 12:47  
pm  
David Duvernell  
(duverneld):  
Approved for  
RBIOLSCI Chair
2. 11/11/21 1:17 pm  
Marita Tibbetts  
(tibbettsmg):

- Approved for CCC  
Secretary
3. 11/11/21 1:19 pm  
Marita Tibbetts  
(tibbettsmg):  
Rollback to CCC  
Secretary for  
Pending CCC  
Agenda post
4. 11/11/21 1:24 pm  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Secretary
5. 11/12/21 3:09 pm  
Katie Shannon  
(shannonk):  
Approved for  
Sciences DSCC  
Chair
6. 11/15/21 2:41 pm  
Marita Tibbetts  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
7. 12/07/21 9:05 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
8. 12/07/21 9:05 am  
Stephen Raper  
(sraper):  
Approved for

## Environmental Science Freshman Seminar

Abbreviated Env Sci Fresh Sem

Course Title

## Catalog

## Description

An introduction to the study of environmental science at Missouri S&T. Students will become acquainted with faculty, facilities, and resources associated with the environmental science program at S&T. Students will also consider opportunities for personal and professional development in environmental sciences.

## Prerequisites

Environmental Science majors only.

## Field Trip

## Statement

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

Total: 1
----------

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

Majors	
--------	--

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

Majors	
--------	--

## Justification for

new course:

Required course for new Environmental Science BS in Biological Sciences

## Semesters

previously

offered as an

experimental

course

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (11/11/21 1:17 pm):** This course will need to be approved simultaneously with the new Env Sci BS. mt

**tibbettsmg (11/11/21 1:19 pm):** Rollback: need to update workflow. mt

Key: 4838

[Preview Bridge](#)

# Course Change Request

## New Course Proposal

Date Submitted: 11/11/21 12:44 pm

Viewing: **ENV SCI 4028 : Environmental Science Senior Capstone**

File: 4839

Last edit: 11/11/21 1:26 pm

Changes proposed by: shannonk

Programs  
referencing this  
course

[PROPOSED: Environmental Sciences, BS](#)

Requested	Fall 2022
Effective Change Date	
Department	Biological Sciences
Discipline	Environmental Sciences (ENV SCI)
Course Number	4028
Title	

### In Workflow

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

### Approval Path

1. 11/11/21 12:47 pm  
David Duvernell (duvernell):  
Approved for  
RBIOLSCI Chair
2. 11/11/21 1:26 pm  
Marita Tibbetts (tibbettsmg):

Approved for CCC  
Secretary

3. 11/12/21 3:09 pm

Katie Shannon

(shannonk):

Approved for  
Sciences DSCC  
Chair

4. 11/15/21 2:43 pm

Marita Tibbetts

(tibbettsmg):

Approved for  
Pending CCC  
Agenda post

5. 12/07/21 9:05 am

Marita Tibbetts

(tibbettsmg):

Approved for CCC  
Meeting Agenda

6. 12/07/21 9:05 am

Stephen Raper

(sraper):

Approved for  
Campus Curricula  
Committee Chair

## Environmental Science Senior Capstone

Abbreviated            Env Sci Senior Capstone  
Course Title

### Catalog

#### Description

This course challenges students to solve real-world environmental problems in a hands-on capacity. Students will learn environmental monitoring techniques and environmental reporting, and engage in professional development. This course

fulfills experiential learning requirements through an industry-engaged project.

#### Prerequisites

Senior standing. Environmental Science majors only.

#### Field Trip

#### Statement

Credit Hours	LEC: 2	LAB: 1	IND: 0	RSD: 0
--------------	--------	--------	--------	--------

Total: 3

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

Majors

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

Majors

#### Justification for

new course:

Required for new Environmental Science BS in Biological Sciences

#### Semesters

previously

offered as an

experimental

course

#### Co-Listed

Courses:

#### Course Reviewer

#### Comments

**tibbettsmg (11/11/21 1:26 pm):** this course will need to be approved simultaneously with the Env Sci BS.

Key: 4839

[Preview Bridge](#)



# Course Change Request

Date Submitted: 11/11/21 10:32 am

Viewing: **GEOLOGY 6100 : Advanced Professional Geoscience Skills**

File: 4605.4

Last approved: 08/05/19 6:01 am

Last edit: 11/12/21 3:08 pm

Changes proposed by: eckertan

Programs  
referencing this  
course

[GL&GPH-PHD: Geology and Geophysics PhD](#)

Requested	Fall <b>2022</b> <del>2019</del>
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geology (GEOLOGY)
Course Number	6100
Title	

## In Workflow

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

## Approval Path

1. 11/11/21 12:10 pm  
Jeff Cawlfeld (jdc): Approved for RGEOENG Chair
2. 11/11/21 1:07 pm  
Marita Tibbetts (tibbettsmg):

Approved for CCC  
Secretary

3. 11/12/21 3:08 pm

Katie Shannon

(shannonk):

Approved for  
Sciences DSCC  
Chair

4. 11/15/21 2:44 pm

Marita Tibbetts

(tibbettsmg):

Approved for  
Pending CCC  
Agenda post

5. 12/07/21 9:10 am

Marita Tibbetts

(tibbettsmg):

Approved for CCC  
Meeting Agenda

6. 12/07/21 9:11 am

Stephen Raper

(sraper):

Approved for  
Campus Curricula  
Committee Chair

### History

1. Aug 5, 2019 by

John Hogan

(jhogan)

Advanced Professional Geoscience Skills

Abbreviated

Adv Pro Geo Skills

Course Title

## Catalog

### Description

Communication of complex research topics in the geosciences is required for successful post-doctoral career advancement in both academic and non-academic career paths. Best practices for developing and proposing scientific ideas in the geosciences will be critiqued weekly. Assessment of research proposals presentations includes peer-and self-evaluation.

### Prerequisites

Doctoral Graduate Standing.

### Field Trip

#### Statement

None

#### Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

#### Required for

No

#### Majors

#### Elective for

No

#### Majors

## Justification for

change:

The Pet Eng program would like to co-list this class as it is beneficial for Pet Eng Graduate students.

Can the name for the Pet Eng 6100 be : Professional Development"? If not keep current name please.

## Semesters

previously

offered as an

experimental

course

None. Will be a required course for the PhD program and a companion DC form is being submitted. Will be taught by Dr. Eckert. Students **can may** not receive credit for

both GEO 5100 and 6100

Co-Listed

Courses:

**PET ENG 6100 - Course Not Found**

Course Reviewer

Comments

**shannonk (11/12/21 3:08 pm):** The DSCC suggested changing may not receive credit for both to can not receive credit for both

Key: 4605

[Preview Bridge](#)

# Course Change Request

Date Submitted: 11/01/21 9:44 pm

Viewing: **GEOLOGY 6611 : Advanced Palynology**

File: 1126.5

Last approved: 03/26/18 3:33 am

Last edit: 11/02/21 9:07 am

Changes proposed by: ikuenobe

Requested **Fall 2022 08/14/2018**

Effective Change

Date

Department Geosciences and Geological and Petroleum  
Engineering

Discipline Geology (GEOLOGY)

Course Number 6611

Title

## 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. CAT entry
11. Peoplesoft

## Approval Path

1. 11/02/21 9:01 am  
Jeff Cawlfeld  
(jdc): Approved  
for RGEOSENG  
Chair
2. 11/02/21 9:07 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC

Secretary

3. 11/12/21 3:08 pm

Katie Shannon

(shannonk):

Approved for

Sciences DSCC

Chair

4. 11/15/21 2:45 pm

Marita Tibbetts

(tibbettsmg):

Approved for

Pending CCC

Agenda post

5. 12/07/21 9:10 am

Marita Tibbetts

(tibbettsmg):

Approved for CCC

Meeting Agenda

6. 12/07/21 9:12 am

Stephen Raper

(sraper):

Approved for

Campus Curricula

Committee Chair

### History

1. Mar 26, 2018 by

ikuenobe (1126.1)

Advanced Palynology

Abbreviated Course Title      Advanced Palynology

Course Title

Catalog

Description

Study of organic-walled microfossils, and the processes of sporopollenin preservation, sedimentation and palynofacies. Chronicle of Phanerozoic palynology in lectures. Major emphasis on independent palynostratigraphic research and applications, such as biostratigraphy, paleoclimatology and paleoenvironments.

#### Prerequisites

Geology **4630** ~~3631~~ or Geology 5741.

#### Field Trip

#### Statement

Credit Hours	LEC: 1	LAB: 2	IND: 0	RSD: 0
--------------	--------	--------	--------	--------

Total: 3

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

Majors

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

Majors

#### Justification for change:

The catalog number for one of the prerequisites, Systematic Paleontology, has changed from Geology 3631 to Geology 4630.

#### Semesters

previously

offered as an

experimental

course

#### Co-Listed

Courses:

Course Reviewer

Comments

Key: 1126

[Preview Bridge](#)

# Course Change Request

Date Submitted: 10/13/21 3:25 pm

Viewing: **MECH ENG 4480 : Control System**

## Laboratory

File: 931.2

Last approved: 03/09/20 6:01 am

Last edit: 10/29/21 2:53 pm

Changes proposed by: nisbett

Programs  
referencing this  
course

[MC ENG-BS: Mechanical Engineering BS](#)

Requested	Fall <b>2022</b> <del>2020</del>
Effective Change Date	
Department	Mechanical & Aerospace Engineering
Discipline	Mechanical Engineering (MECH ENG)
Course Number	4480
Title	

### 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. CAT entry
11. Peoplesoft

### Approval Path

1. 10/29/21 2:47 pm  
David Bayless  
(djbkqf):  
Approved for  
RMECHENG Chair
2. 10/29/21 2:53 pm  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC



Secretary

3. 11/12/21 9:59 am

Stephen Raper

(sraper):

Approved for

Engineering DSCC

Chair

4. 11/15/21 2:47 pm

Marita Tibbetts

(tibbettsmg):

Approved for

Pending CCC

Agenda post

5. 12/07/21 9:10 am

Marita Tibbetts

(tibbettsmg):

Approved for CCC

Meeting Agenda

6. 12/07/21 9:12 am

Stephen Raper

(sraper):

Approved for

Campus Curricula

Committee Chair

### History

1. Mar 9, 2020 by

nisbett (931.1)

Control System Laboratory

Abbreviated            Control System Lab

Course Title

Catalog

Description

Experiments dealing with data acquisition, manipulation, and control of systems with particular emphasis on computer data acquisition and control applied to mechanical engineering systems. Microcomputer systems are used as measurement and control devices.

#### Prerequisites

**Preceded or accompanied by** Mech Eng 4479.

#### Field Trip

#### Statement

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

Total: 1

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

Majors

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

Majors

Justification for  
change:

The lab format has been adjusted to allow for concurrent enrollment in ME 4479.

Semesters

previously

offered as an

experimental

course

Co-Listed

Courses:

Course Reviewer

Comments

**tibbettsmg (10/29/21 2:53 pm):** updated effective term to FS 22. MT

Key: 931

[Preview Bridge](#)

## Program Change Request

### New Program Proposal

Date Submitted: 09/30/21 2:21 pm

Viewing: **PROPOSED : Environmental Sciences BS**

File: 382

Last edit: 12/07/21 9:12 am

Changes proposed by: nancym

Start Term

Fall 2022

Program Code

PROPOSED

Department

Biological Sciences

Title

Environmental Sciences BS

### Program Requirements and Description

### In Workflow

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

### Approval Path

1. 09/10/21 8:51 am  
David Duvernell (duvernell):  
Approved for  
RBIOLSCI Chair
2. 09/30/21 1:26 pm  
Marita Tibbetts (tibbettsmg):  
Rollback to Initiator
3. 10/29/21 1:57 pm  
David Duvernell (duvernell):  
Approved for  
RBIOLSCI Chair
4. 10/29/21 2:09 pm  
Marita Tibbetts (tibbettsmg):  
Approved for CCC Secretary
5. 11/12/21 3:09 pm  
Katie Shannon (shannonk):  
Approved for  
Sciences DSCC Chair
6. 11/15/21 2:52 pm

Marita Tibbetts  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post  
7. 12/07/21 9:12 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda  
8. 12/07/21 9:14 am  
Stephen Raper  
(srafer): Approved  
for Campus  
Curricula  
Committee Chair

## Bachelor of Science in Environmental Sciences

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

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

This curriculum benefits from a flexible design that allows students who may be transitioning from other programs on campus to complete the program in a timely manner. In addition, the degree creates opportunities for students to complete multiple minors within the degree, adding focus and strength to the interdisciplinary foundation.

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">BIO SCI 1173</a>	3	<a href="#">ENGLISH 1160</a>	3
<a href="#">ENV SCI 1110</a>	1	<a href="#">CHEM 1320</a>	3
<a href="#">CHEM 1310</a>	4	<a href="#">BIO SCI 1223</a>	3
<a href="#">CHEM 1100</a>	1	<a href="#">BIO SCI 1229</a>	1
<a href="#">CHEM 1319</a>	1	<a href="#">MATH 1212</a> , or <a href="#">1211</a> , or <a href="#">1214</a> , or <a href="#">1221</a>	4
<a href="#">ECON 1100</a>	3		

<a href="#">ENGLISH 1120</a>	3		
	16		14
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">GEOLOGY 1110</a>	3	<a href="#">BIO SCI 2263</a>	3
<a href="#">ECON 4641</a>	3	<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a>	3
<a href="#">ENV ENG 2601</a>	3	<a href="#">ENV ENG 2602</a>	3
<a href="#">PHYSICS 1145</a>	4	<a href="#">GEO ENG 3148</a>	3
<a href="#">POL SCI 1200</a>	3	<a href="#">CIV ENG 5640</a>	3
	16		15
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">PHILOS 1130</a>	3	<a href="#">HISTORY 4470</a> , or <a href="#">2510</a> , or <a href="#">3530</a> , or <a href="#">3510</a>	3
<a href="#">GEO ENG 5331</a>	3	<a href="#">GEOLOGY 2611</a>	3
<a href="#">ECON 1200</a>	3	<a href="#">PHILOS 4350</a>	3
<a href="#">ENV ENG 5642</a>	3	<a href="#">STAT 3425</a>	4
<a href="#">BIO SCI 4313</a>	3	<a href="#">BIO SCI 2223</a>	3
	15		16
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">GEOLOGY 4310</a>	3	FREE ELECTIVES	3
FREE ELECTIVES	2	<a href="#">ENV SCI 4028</a>	3
UPPER DIVISION ELECTIVES <sup>1</sup>	9	UPPER DIVISION ELECTIVES <sup>1</sup>	9
	14		15
Total Credits: 121			

<sup>1</sup> See Upper Division Elective Course List

### Upper Division Elective Course List

<a href="#">BIO SCI 2242</a>	Cave Biology	2
<a href="#">BIO SCI 2252</a>	Vegetation of the Ozarks	2
<a href="#">BIO SCI 2264</a>	Field Ecology	2
<a href="#">BIO SCI 2353</a>	Zoology	3
<a href="#">BIO SCI 2372</a>	Issues in Public Health	3
<a href="#">BIO SCI 2383</a>	Plant Biology	3
<a href="#">BIO SCI 2389</a>	Plant Biology Laboratory	1
<a href="#">BIO SCI 3353</a>	Comparative Vertebrate Anatomy	4
<a href="#">BIO SCI 4343</a>	Introduction to Geomicrobiology	3

<a href="#">BIO SCI 4363</a>	Freshwater Ecology	3
<a href="#">BIO SCI 4383</a>	Toxicology	3
<a href="#">BIO SCI 4423</a>	Introduction to Astrobiology	3
<a href="#">BIO SCI 4563</a>	Global Ecology	3
<a href="#">ECON 4540</a>	Energy Economics	3
<a href="#">ECON 4440</a>	Environmental And Natural Resource Economics	3
<a href="#">ECON 4643</a>	Ethical Problems in a Global Environment	3
<a href="#">ECON 5644</a>	Creativity, Innovation, and Sustainability	3
<a href="#">CHEM 4710</a>	Principles Of Environmental Monitoring	3
<a href="#">ENV ENG 3615</a>	Water And Wastewater Engineering	3
<a href="#">ENV ENG 5605</a>	Environmental Systems Modeling	3
<a href="#">ENV ENG 5630</a>	Remediation of Contaminated Groundwater And Soil	3
<a href="#">ENV ENG 5635</a>	Phytoremediation and Natural Treatment Systems: Science and Design	3
<a href="#">ENV ENG 5660</a>	Introduction To Air Pollution	3
<a href="#">ENV ENG 5662</a>	Air Pollution Control Methods	3
<a href="#">GEOLOGY 4310</a>	Remote Sensing Technology	3
<a href="#">GEOLOGY 4411</a>	Hydrogeology	3
<a href="#">GEOLOGY 4711</a>	Paleoclimatology and Paleoecology	3
<a href="#">GEOLOGY 4721</a>	Meteorology and Climatology	3
<a href="#">GEOLOGY 5681</a>	Lidar Principles and Application	3
<a href="#">GEOLOGY 5741</a>	Micropaleontology	3
<a href="#">GEO ENG 4115</a>	Statistical Methods in Geology and Engineering	3
<a href="#">GEO ENG 4276</a>	Environmental Aspects Of Mining	3
<a href="#">GEO ENG 5233</a>	Risk Assessment In Environmental Studies	3

#### Justification for request

CIP Code 03.0104

#### Supporting Documents

[Full Proposal Enviro Sci SF.pdf](#)

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

[CourseNumberENVSCI.docx](#)

#### Course Reviewer Comments

**tibbettsmg (09/30/21 1:25 pm):** reformatted the plan of study grid.

**tibbettsmg (09/30/21 1:26 pm):** Rollback: I reformatted the plan of study grid and it shows only 117-118 hours. The degree requires 120 hours of coursework. Please review, correct, and resubmit.

MT

**shannonk (11/03/21 8:49 am):** removed Math 1208 since it is no longer offered. Added Math 1211 as an option

**shannonk (11/11/21 12:07 pm):** Course numbers for new Env Sci freshman and senior capstone courses changed with approval (see attached)

**tibbettsmg (12/07/21 9:12 am):** removed comma from title.

Key: 382

## Program Change Request

### New Program Proposal

Date Submitted: 10/19/21 9:46 am

Viewing: **PROPOSED : Foundations of Supply Chain Integration Systems CT**

File: 385

Last edit: 11/15/21 2:48 pm

Changes proposed by: cornss

Start Term

Fall 2022

Program Code

PROPOSED

Department

Engineering Management and Systems Engineering

Title

Foundations of Supply Chain Integration Systems CT

### Program Requirements and Description

### 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. **Kristy Giacomelli-Feys**

### Approval Path

1. 10/18/21 10:22 am  
Suzanna Long  
(longsuz): Approved for RENG MNGT Chair
2. 10/18/21 12:08 pm  
Marita Tibbetts  
(tibbettsmg): Rollback to Initiator
3. 10/19/21 10:57 am  
Suzanna Long  
(longsuz): Approved for RENG MNGT Chair
4. 10/19/21 11:00 am  
Marita Tibbetts  
(tibbettsmg): Approved for CCC Secretary
5. 11/12/21 10:00 am  
Stephen Raper  
(sraper): Approved for Engineering DSCC Chair
6. 11/15/21 2:50 pm  
Marita Tibbetts



(tibbettsmg):  
 Approved for  
 Pending CCC  
 Agenda post  
 7. 12/07/21 9:10 am  
 Marita Tibbetts  
 (tibbettsmg):  
 Approved for CCC  
 Meeting Agenda  
 8. 12/07/21 9:11 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

The Foundations of Supply Chain Integration Systems certificate is open to all persons holding a BS in engineering or a quantitative business degree or who are currently accepted into a graduate degree program at Missouri S&T. Once admitted to the program, the student must take the four designated courses (provided in the curriculum section). In order to receive a Graduate Certificate, the student must have an average cumulative grade point of 3.0 or better in the certificate courses. Once admitted to the program, a student will be given three years to complete the program.

Students admitted to the Foundations of Supply Chain Integration Systems Certificate Program will have non-degree graduate status, however, they will earn graduate credit for the course they complete. If the student completes the four-course sequence with a grade of B or better in each of the courses taken, they, upon application, will be admitted to the M.S. degree program in Engineering Management or the M.S. degree program in Systems Engineering. The certificate credits taken by the students admitted to the M.S. degree program will count towards their master's degrees. Students who do not have all of the prerequisite courses necessary to begin the courses in the Foundations of Supply Chain Integration Systems Certificate Program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

Curriculum:

<a href="#">ENG MGT 5313</a>	Packaging Management	3
<a href="#">ENG MGT 5515</a>	Integrated Product And Process Design	3
<a href="#">ENG MGT 5614</a>	Supply Chain Management Systems	3
<a href="#">SYS ENG 6104</a>	Systems Architecting	3

Justification for request

Certificate has already been approved by MDHE.

Supporting Documents

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

[EMSE New Graduate Certificates.pdf](#)

Course Reviewer Comments

**tibbettsmg (10/18/21 12:08 pm):** Rollback: Please attach approval documentation (provost and MDHE) and resubmit. MT

**tibbettsmg (11/15/21 2:48 pm): updated title to include "CT"**

Key: 385

## Program Change Request

### New Program Proposal

Date Submitted: 10/19/21 9:47 am

Viewing: **PROPOSED : Modeling and Simulation for Decision Systems CT**

File: 383

Last edit: 11/15/21 2:49 pm

Changes proposed by: cornss

Start Term

Fall 2022

Program Code

PROPOSED

Department

Engineering Management and Systems Engineering

Title

Modeling and Simulation for Decision Systems CT

### Program Requirements and Description

### 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. **Kristy Giacomelli-Feys**

### Approval Path

1. 10/18/21 10:10 am  
Suzanna Long  
(longsuz): Approved for RENG MNGT Chair
2. 10/18/21 12:09 pm  
Marita Tibbetts  
(tibbettsmg): Rollback to Initiator
3. 10/19/21 10:57 am  
Suzanna Long  
(longsuz): Approved for RENG MNGT Chair
4. 10/19/21 11:04 am  
Marita Tibbetts  
(tibbettsmg): Approved for CCC Secretary
5. 11/12/21 10:00 am  
Stephen Raper  
(sraper): Approved for Engineering DSCC Chair
6. 11/15/21 2:51 pm  
Marita Tibbetts

(tibbettsmg):  
 Approved for  
 Pending CCC  
 Agenda post  
 7. 12/07/21 9:10 am  
 Marita Tibbetts  
 (tibbettsmg):  
 Approved for CCC  
 Meeting Agenda  
 8. 12/07/21 9:11 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

The Modeling and Simulation for Decision Systems Certificate is open to all persons holding a BS in engineering or a quantitative business degree or who are currently accepted into a graduate degree program at Missouri S&T. Once admitted to the program, the student must take the four designated courses (provided in the curriculum section). In order to receive a Graduate Certificate, the student must have an average cumulative grade point of 3.0 or better in the certificate courses. Once admitted to the program, a student will be given three years to complete the program.

Students admitted to the Modeling and Simulation for Decision Systems Certificate Program will have non-degree graduate status, however, they will earn graduate credit for the course they complete. If the student completes the four-course sequence with a grade of B or better in each of the courses taken, they, upon application, will be admitted to the M.S. degree program in Engineering Management or the M.S. degree program in Systems Engineering. The certificate credits taken by the students admitted to the M.S. degree program will count towards their master's degrees. Students who do not have all of the prerequisite courses necessary to begin the courses in the Modeling and Simulation for Decision Systems Certificate Program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

Curriculum:

<a href="#">ENG MGT 5110</a>	Managerial Decision Making	3
<a href="#">ENG MGT 6310</a>	Human Systems Integration	3
<a href="#">ENG MGT 6411</a>	Advanced Topics in Simulation Modeling	3
<a href="#">ENG MGT 6415</a>	Optimization under Uncertainty	3
or <a href="#">SYS ENG 6110</a>	Optimization under Uncertainty	

#### Justification for request

Proposal has been proposed to and approved by MBHE.

#### Supporting Documents

[EMSE New Graduate Certificates.pdf](#)

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

#### Course Reviewer Comments

**tibbettsmg (10/18/21 12:09 pm):** Rollback: Please attach approval documentation (provost and

MDHE) and resubmit. MT

**tibbettsmg (11/15/21 2:49 pm):** updated title to include "CT"

Key: 383

## Program Change Request

### New Program Proposal

Date Submitted: 10/19/21 9:47 am

Viewing: **PROPOSED : Systems of Human Capital Management CT**

File: 384

Last edit: 11/15/21 2:49 pm

Changes proposed by: cornss

Start Term

Fall 2022

Program Code

PROPOSED

Department

Engineering Management and Systems Engineering

Title

Systems of Human Capital Management CT

### Program Requirements and Description

### 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. **Kristy Giacomelli-Feys**

### Approval Path

1. 10/18/21 10:10 am  
Suzanna Long  
(longsuz): Approved for RENG MNGT Chair
2. 10/18/21 12:09 pm  
Marita Tibbetts  
(tibbettsmg): Rollback to Initiator
3. 10/19/21 10:57 am  
Suzanna Long  
(longsuz): Approved for RENG MNGT Chair
4. 10/19/21 11:03 am  
Marita Tibbetts  
(tibbettsmg): Approved for CCC Secretary
5. 11/12/21 10:01 am  
Stephen Raper  
(sraper): Approved for Engineering DSCC Chair
6. 11/15/21 2:51 pm  
Marita Tibbetts

(tibbettsmg):  
 Approved for  
 Pending CCC  
 Agenda post  
 7. 12/07/21 9:11 am  
 Marita Tibbetts  
 (tibbettsmg):  
 Approved for CCC  
 Meeting Agenda  
 8. 12/07/21 9:11 am  
 Stephen Raper  
 (sraper): Approved  
 for Campus  
 Curricula  
 Committee Chair

The Systems of Human Capital Management Certificate is open to all persons holding a BS in engineering or a quantitative business degree or who are currently accepted into a graduate degree program at Missouri S&T. Once admitted to the program, the student must take the four designated courses (provided in the curriculum section). In order to receive a Graduate Certificate, the student must have an average cumulative grade point of 3.0 or better in the certificate courses. Once admitted to the program, a student will be given three years to complete the program.

Students admitted to the Systems of Human Capital Management Certificate Program will have non-degree graduate status, however, they will earn graduate credit for the course they complete. If the student completes the four-course sequence with a grade of B or better in each of the courses taken, they, upon application, will be admitted to the M.S. degree program in Engineering Management or the M.S. degree program in Systems Engineering. The certificate credits taken by the students admitted to the M.S. degree program will count towards their master's degrees. Students who do not have all of the prerequisite courses necessary to begin the courses in the SYSTEMS OF HUMAN CAPITAL MANAGEMENT Certificate Program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

Curriculum:

<a href="#">ENG MGT 5110</a>	Managerial Decision Making	3
<a href="#">ENG MGT 5111</a>	Management for Engineers and Scientists	3
<a href="#">ENG MGT 6113</a>	Advanced Personnel Management	3
<a href="#">ENG MGT 6413</a>	Advanced Engineering Management Science	3

Justification for request

Certificate has already been approved by MDHE

Supporting Documents

[EMSE New Graduate Certificates.pdf](#)

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

Course Reviewer Comments

**tibbettsmg (10/18/21 12:09 pm):** Rollback: Please attach approval documentation (provost and MDHE) and resubmit. MT

**tibbettsmg (11/15/21 2:49 pm):** updated title to include "CT"

Key: 384



# New Experimental Course Proposal

Date Submitted: 10/30/21 11:44 am

Viewing: **COMP SCI 6001.008 : High-Performance Computing**

File: 4832

Last edit: 11/01/21 11:36 am

Changes proposed by: zhupe

Requested	Spring 2022
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	6001
Topic ID	008
Experimental Title	High-Performance Computing
Experimental Abbreviated Course Title	HPC
Instructors	Xin Liang

Experimental Catalog Description

In Workflow

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

Approval Path

1. 10/31/21 5:43 pm  
Samuel Frimpong (frimpong):  
Approved for RCOMPSCI Chair
2. 11/01/21 11:36 am  
Marita Tibbetts (tibbettsmg):  
Approved for CCC Secretary
3. 11/12/21 9:58 am  
Stephen Raper (sraper):  
Approved for

Engineering DSCC  
Chair

4. 11/15/21 2:53 pm  
Marita Tibbetts  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 12/07/21 9:12 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
6. 12/07/21 9:14 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair
7. 12/07/21 9:27 am  
Evie Sherlock  
(esdk3):  
Approved for CAT  
entry

This course provides students with knowledge and fundamental concepts of high-performance computing as well as hands-on experience of the core technology in the field. The objective is to understand how to achieve high performance on a wide range of computing platforms ranging from laptops to large-scale clusters.

#### Prerequisites

A grade of "C" or better in Comp Sci 5200 or consent of instructor.

#### Field Trip

#### Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Justification for  
new course:

As the size of data and complexity of computation continue to grow, high-performance computing (HPC) is becoming more and more important for a variety of science domains including physics, chemistry, climate, and artificial intelligence. For instance, deployment of HPC on deep learning has reduced the training time of AlexNet on ImageNet from several days to several minutes. HPC provides efficient and effective solutions for solving a wide range of problems and contributes to various scientific, industrial, and societal advancements. Therefore, it is important for the students to learn the basic techniques in HPC and how to leverage them to advance real applications.

Semester(s)  
previously taught

Co-Listed  
Courses:

Course Reviewer  
Comments

Key: 4832

[Preview Bridge](#)

# New Experimental Course Proposal

Date Submitted: 10/30/21 11:43 am

Viewing: **COMP SCI 6001.009 : Industrial Control Systems for Computer Scientists**

File: 4830

Last edit: 11/01/21 11:37 am

Changes proposed by: zhupe

Requested	Spring 2022
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	6001
Topic ID	009
Experimental Title	Industrial Control Systems for Computer Scientists
Experimental Abbreviated Course Title	Control Systems
Instructors	George Markowsky

Experimental Catalog Description

In Workflow

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

Approval Path

1. 10/31/21 5:43 pm  
Samuel Frimpong (frimpong):  
Approved for RCOMPSCI Chair
2. 11/01/21 11:39 am  
Marita Tibbetts (tibbettsmg):  
Approved for CCC Secretary
3. 11/12/21 9:59 am  
Stephen Raper (sraper):  
Approved for

Engineering DSCC  
Chair

4. 11/15/21 2:54 pm

Marita Tibbetts

(tibbettsmg):

Approved for

Pending CCC

Agenda post

5. 12/07/21 9:12 am

Marita Tibbetts

(tibbettsmg):

Approved for CCC

Meeting Agenda

6. 12/07/21 9:14 am

Stephen Raper

(sraper):

Approved for

Campus Curricula

Committee Chair

7. 12/07/21 9:27 am

Evie Sherlock

(esdk3):

Approved for CAT

entry

This course will cover the basics of industrial control systems, their importance, interactions between ICSs and standard IT networks, the cybersecurity of ICSs, case studies of cyberattacks, and the Internet of Things. The course will also discuss how to model and verify the behavior of industrial control systems, and introduce formal model checkers.

#### Prerequisites

A grade of "C" or better in Comp Sci 5200 or consent of instructor.

#### Field Trip

#### Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Justification for

new course:

In recent years, industrial control systems have come under cyberattacks that have caused serious disruptions of society. Most computer science students have little or no understanding of industrial control systems even though they work on IT systems that interact with these industrial control systems. It is important for computer science students to understand how these systems work and how to integrate them into IT systems without endangering the industrial control systems.

Semester(s)

previously taught

Co-Listed

Courses:

Course Reviewer

Comments

Key: 4830

[Preview Bridge](#)

# New Experimental Course Proposal

Date Submitted: 10/18/21 1:34 pm

Viewing: **MS&E 5001.004 : Scientific Challenges to Hypersonic Flight**

File: 4829

Last edit: 10/29/21 2:12 pm

Changes proposed by: smiller

Requested	Spring 2022
Effective Change Date	
Department	Materials Science & Engineering
Discipline	Materials Science & Eng (MS&E)
Course Number	5001
Topic ID	004
Experimental Title	Scientific Challenges to Hypersonic Flight
Experimental Abbreviated Course Title	Challenge to Hypersonic
Instructors	David Lipke

Experimental Catalog Description

In Workflow

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

Approval Path

1. 10/29/21 1:52 pm moatsm:  
Approved for RMATSENG Chair
2. 10/29/21 2:13 pm Marita Tibbetts (tibbettsmg):  
Approved for CCC Secretary
3. 11/12/21 10:00 am Stephen Raper (sraper):  
Approved for Engineering DSCC Chair

4. 11/15/21 2:56 pm  
Marita Tibbetts  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 12/07/21 9:12 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
6. 12/07/21 9:14 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair
7. 12/07/21 9:31 am  
Evie Sherlock  
(esdk3):  
Approved for CAT  
entry

In this course, the scientific challenges to the development of hypersonic flight systems are explored through a series of cross-disciplinary lectures provided by subject matter experts in areas ranging from aerothermodynamics and propulsion, to systems engineering, materials science, advanced manufacturing, and guidance, navigation, and control.

#### Prerequisites

Senior or Graduate Standing.

#### Field Trip

#### Statement

Credit Hours

LEC: 1

LAB: 0

IND: 0

RSD: 0

Total: 1



---

Justification for

new course:

The recent prioritization of hypersonic capability development in support of our National Defense has created an incredible demand for a technical workforce adept at developing such systems and uncovered a gap in the availability and preparedness of such a future workforce. Despite the recent explosion of demand, only a limited number of academic programs provide a strong emphasis on hypersonic-relevant subjects in their curricula, and a lack of awareness of hypersonics and national defense opportunities exists among undergraduate students. Constructing the U.S. workforce required to advance hypersonic systems requires engagement across relevant disciplines.

Semester(s)

previously taught

none

Co-Listed

Courses:

Course Reviewer

Comments

Key: 4829

[Preview Bridge](#)

# New Experimental Course Proposal

Date Submitted: 10/18/21 1:34 pm

Viewing: **MS&E 5001.004 : Scientific Challenges to Hypersonic Flight**

File: 4829

Last edit: 10/29/21 2:12 pm

Changes proposed by: smiller

Requested	Spring 2022
Effective Change Date	
Department	Materials Science & Engineering
Discipline	Materials Science & Eng (MS&E)
Course Number	5001
Topic ID	004
Experimental Title	Scientific Challenges to Hypersonic Flight
Experimental Abbreviated Course Title	Challenge to Hypersonic
Instructors	David Lipke

Experimental Catalog Description

In Workflow

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

Approval Path

1. 10/29/21 1:52 pm moatsm:  
Approved for RMATSENG Chair
2. 10/29/21 2:13 pm Marita Tibbetts (tibbettsmg):  
Approved for CCC Secretary
3. 11/12/21 10:00 am Stephen Raper (sraper):  
Approved for Engineering DSCC Chair

4. 11/15/21 2:56 pm  
Marita Tibbetts  
(tibbettsmg):  
Approved for  
Pending CCC  
Agenda post
5. 12/07/21 9:12 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CCC  
Meeting Agenda
6. 12/07/21 9:14 am  
Stephen Raper  
(sraper):  
Approved for  
Campus Curricula  
Committee Chair
7. 12/07/21 9:31 am  
Evie Sherlock  
(esdk3):  
Approved for CAT  
entry

In this course, the scientific challenges to the development of hypersonic flight systems are explored through a series of cross-disciplinary lectures provided by subject matter experts in areas ranging from aerothermodynamics and propulsion, to systems engineering, materials science, advanced manufacturing, and guidance, navigation, and control.

#### Prerequisites

Senior or Graduate Standing.

#### Field Trip

#### Statement

Credit Hours

LEC: 1

LAB: 0

IND: 0

RSD: 0

Total: 1

---

Justification for

new course:

The recent prioritization of hypersonic capability development in support of our National Defense has created an incredible demand for a technical workforce adept at developing such systems and uncovered a gap in the availability and preparedness of such a future workforce. Despite the recent explosion of demand, only a limited number of academic programs provide a strong emphasis on hypersonic-relevant subjects in their curricula, and a lack of awareness of hypersonics and national defense opportunities exists among undergraduate students. Constructing the U.S. workforce required to advance hypersonic systems requires engagement across relevant disciplines.

Semester(s)

previously taught

none

Co-Listed

Courses:

Course Reviewer

Comments

Key: 4829

[Preview Bridge](#)