Campus Curricula Committee Meeting Agenda

April 30, 2024
8:15am - 9:30am, Parker Hall 203
(For Faculty Senate Meeting of June 6, 2024)

Review of submitted Course Change forms:

File: 2317.17 BUS 5150 : Customer Focus and Satisfaction
File: 507.14 BUS 5360 : Business Operations
File: 1411.3 BUS 6111 : Advanced Business Negotiations
File: 2318.7 BUS 6150 : Advanced Customer Focus and Satisfaction
File: 2146.5 BUS 6675 : Advanced International Business
File: 2618.5 CER ENG 4310 : Ceramic Processing
File: 178.1 CER ENG 5115 : X-Ray Diffraction Analysis
File: 268.10 CHEM 3420 : Introduction To Quantum Chemistry
File: 231.3 CHEM 3430 : Chemical Kinetics I
File: 2041.6 CHEM ENG 2110 : Chemical Engineering Thermodynamics I
File: 4283.14 CHEM ENG 4101 : Chemical Engineering Laboratory I
File: 792.14 CHEM ENG 4130 : Chemical Engineering Laboratory II
File: 848.5 COMP ENG 6110 : Advanced Computer Architecture I
File: 1724.1 COMP ENG 6430 : High Speed Networks
File: 5070 COMP SCI 5480 : Introduction to Deep Learning
File: 464.1 ECON 4230 : Money And Banking
File: 476.1 ECON 4730 : Economic Development
File: 4943.9 ECON 5380 ~~5350~~ : Data Intelligence using Case Studies
File: 2530.3 ELEC ENG 5330 : Fuzzy Logic Control
File: 558.1 ELEC ENG 6390 : Current Topics In Control Theory
File: 594.1 ENG MGT 5414 : Introduction To Operations Research
File: 601.1 ENG MGT 5714 : Statistical Process Control
File: 607.1 ENG MGT 6110 : Case Studies In General Management
File: 609.1 ENG MGT 6211 : Advanced Financial Management
File: 2049.1 ENG MGT 6214 : Financial Engineering II
File: 606.1 ENG MGT 6510 : Technological Innovation Management
File: 639.1 ENGLISH 1223 : Introduction To American Studies
File: 1384.1 ENGLISH 3101 : Advanced Composition
File: 673.4 ENGLISH 3560 : Technical Writing
File: 4499.11 FINANCE 5310 : Financial Technology and Analytics
File: 1936.1 FINANCE 6230 : Advanced Mathematical Finance
File: 5068 GEOLOGY 1001 : Special Topics
File: 5065 HISTORY 3200 : History of Eastern Europe
File: 1478.3 IS&T 3321 : Network Performance Design And Management
File: 1068.1 IS&T 5168 : Law and Ethics in E-Commerce

File: 5061 IS&T 5725 : Fundamentals of Cybersecurity Analytics
File: 1871.10 IS&T 6335 : Mobile Technology for Business
File: 1906.1 IS&T 6448 : Building the Data Warehouse
File: 1614.10 IS&T 6680 : Advanced Digital Media Development and Interactive Design
File: 4385.7 IS&T 6780 : Adv Human and Organizational Factors in Cybersecurity
File: 4731.9 MKT 5410 : Big Data Consumer Analytics
File: 1229.10 MKT 6580 : Advanced Marketing Strategy
File: 5071 PHYSICS 5409 : Computational Physics Laboratory
File: 1718.1 PSYCH 4603 : Social Influence: Science and Practice
File: 2398.1 PSYCH 5603 : Advanced Social Influence

Review of submitted Program Change forms:
File: 253.20 AI-MI : Minor in Artificial Intelligence and Machine Learning in Business
File: 176.4 AM STU-MI : American Studies Minor
File: 142.61 AP MATH-BS : Applied Mathematics BS
File: 148.54 BUS&MS-BS : Business and Mgmt Systems BS
File: 16.49 CHEM-BS : Chemistry BS
File: 149.37 CR ENG-BS : Ceramic Engineering BS
File: 247.26 CYBERMG-MI : Cybersecurity Management and Information Assurance Minor
File: 395.10 DDA-CTU : Decision Data Analytics – CTU
File: 396.10 E ECON-CTU : Energy Economics – CTU
File: 37.7 E/T ECN-MI : E/T Economics Minor
File: 38.45 ECON-BA : Economics BA
File: 39.47 ECON-BS : Economics BS
File: 44.55 ENG MG-BS : Engineering Management BS
File: 46.15 ENG MG-MS : Engineering Management MS
File: 47.6 ENG MG-PHD : Engineering Management PhD
File: 290.2 FIN TCH-CT : Financial Technology, Analytics and Transformation Technology CT
File: 156.68 GE ENG-BS : Geological Engineering BS
File: 139.8 GS ECON-MI : Global Sustainable Economics Minor
File: 76.6 IN ECN-MI : International Economics Minor
File: 75.41 IST-BS : Information Science and Tch BS
File: 86.57 MC ENG-BS : Mechanical Engineering BS
File: 90.40 MT ENG-BS : Metallurgical Engineering BS
File: 102.23 MUL&DIV-MI : Multiculture & Diversity Minor
File: 411 PROPOSED : Digital Engineering – CT
File: 412 PROPOSED : Russian and Eurasian Studies CTU
File: 399.10 Q ECON-MI : Quantitative Economics Minor
File: 375.16 SCITEC-CTU : CTU - Science, Technology, and Society
File: 131.16 SYS EN-PHD : Systems Engineering PhD
File: 140.11 SYS ENG-MS : Systems Engineering MS
File: 337.2 TCH CM-CTU : Technical Communication CTU
File: 181.11 TCH COM-MI : Technical Communication Minor

Review of submitted Experimental Course forms:

File: 5062 BIO SCI 5001.011 : Wildlife Conservation
File: 5064 BIO SCI 5001.012 : Natural Resource Ecology
File: 5059 BUS 5001.013 : Branding for Innovation
File: 5005 GEO ENG 6001.007 : Advanced Mapping with Drones
File: 5066 GEOLOGY 1001.001 : Violent Earth: The Science of Natural Disasters
File: 5078 HISTORY 3001.011 : History of the Modern Civil Rights Movement

New Business:

Review the proposed CCC calendar
Discuss General Education Proposal

Course Change Request

Date Submitted: 04/12/24 3:10 pm

Viewing: BUS 5150 : Customer Focus and Satisfaction

File: 2317.17

Last approved: 02/01/21 6:01 am

Last edit: 04/12/24 3:10 pm

Changes proposed by: jpnfd

Programs referencing this course	MGMT-MI: Management Minor BUS&MS-BS: Business and Mgmt Systems BS ENT&TEC-CT: Entrepreneur & Tech Innovat CT MGTLEAD-CT: Management and Leadership HUMFACT-CT: Human Factors Psychology CT ENTPRNS-MI: Entrepreneurship Minor

Requested Effective Change Date	Fall 2024 ~~2021~~
Department	Business and Information Tech ~~Business Administration~~
Discipline	Business (BUS)
Course Number	5150
Title	Customer Focus and Satisfaction
Abbreviated Course Title	Customer Focus & Satisfaction

Catalog Description

Major emphasis is given to the concept of customer focus, with coverage of techniques for obtaining customer needs, measuring customer satisfaction, developing products and services to satisfy customers, and maximizing the benefits of customer feedback. A semester long HoQ project will be done.

Prerequisites

Mkt 3110 or Mkt 3105 or Eng Mgt 3510.

Field Trip Statement

In Workflow

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

Approval Path

1. 04/12/24 3:12 pm Jennifer Pohlsander (jpnfd): Approved for RBUSADMN Chair
2. 04/12/24 3:38 pm Jennifer Pohlsander (jpnfd): Rollback to RBUSADMN Chair for RBUS&IT Chair
3. 04/15/24 10:56 am Cassie Elrod

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	Yes			

Justification for change:

MKT 5150 removed from co-listed with BUS 5150.

Semesters previously offered as an experimental course

Co-Listed Courses:

~~MKT 5150~~ - ~~Customer Focus and Satisfaction~~

Course Reviewer Comments

jpnfd (04/12/24 3:38 pm): Rollback: Rollback to BUS Chair

Key: 2317

(cassa): Approved for RBUSADMN Chair

4. 04/15/24 11:20 am
   Cassie Elrod (cassa): Approved for RBUS&IT Chair
5. 04/16/24 11:45 am
   Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
6. 04/16/24 5:24 pm
   Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
7. 04/18/24 3:47 pm
   Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 3, 2014 by barryf (2317.1)
2. Sep 29, 2014 by lahne (2317.8)
3. Feb 1, 2021 by cecq8z (2317.10)

Preview Bridge

Course Change Request

Date Submitted: 04/03/24 4:07 pm

Viewing: BUS 5360 : Business Operations

File: 507.14

Last approved: 04/03/24 7:44 am

Last edit: 04/05/24 1:57 pm

Changes proposed by: cecq8z

Programs referencing this course	PRE MBA-MI: Pre MBA Minor MGMT-MI: Management Minor BUS&MS-BS: Business and Mgmt Systems BS DSCMGMT-CT: Digital Supply Chain Mgmt CT DSCMGMT-MI: Digital Supply Chain Mgt Minor

Requested Effective Change Date	Fall 2024 ~~Spring 2021~~
Department	Business and Information Tech
Discipline	Business (BUS)
Course Number	5360
Title	Business Operations
Abbreviated Course Title	Business Operations

Catalog Description

This course examines the concepts, processes, and institutions that are fundamental to an understanding of business operations within organizations. Emphasis is on the management and organization of manufacturing and service operations and the application of quantitative methods to the solution of strategic, tactical and operational problems.

Prerequisites

BUS 1210 or ENG MGT 2211; at least Junior standing; and one of the following: STAT ~~1111, STAT~~ 1115, STAT 3111, STAT 3113, STAT 3115, or STAT 3117.

Field Trip Statement

In Workflow

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

Approval Path

1. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RBUS&IT Chair
2. 04/05/24 1:57 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 1:58 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/05/24 1:59 pm Jennifer Pohlsander

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	Yes			

Justification for change:

STAT 1111 has been delisted.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

jpnfd (04/05/24 1:57 pm): Updated term to Fall 2024.

jpnfd (04/05/24 1:59 pm): Rollback: Updates

Key: 507

(jpnfd): Rollback to CCC Secretary for Pending CCC Agenda post

5. 04/05/24 2:18 pm Evie Sherlock (esdk3): Approved for CCC Secretary
6. 04/05/24 3:24 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
7. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jul 7, 2014 by barryf (507.1)
2. May 4, 2015 by barryf (507.4)
3. Sep 28, 2020 by cecq8z (507.10)
4. Apr 3, 2024 by esdk3 (507.12)

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/04/24 8:35 am

Viewing: **BUS 6111 : Advanced Business Negotiations**

File: 1411.3

Last approved: 11/03/14 3:53 am

Last edit: 04/04/24 8:35 am

Changes proposed by: jpnfd

Requested Effective Change Date	Fall 2024 ~~01/13/2015~~
Department	Business Administration
Discipline	Business (BUS)
Course Number	6111
Title	Advanced Business Negotiations
Abbreviated Course Title	Advanced Bus Negotiations

Catalog Description

The purpose of this course is to understand the practices and processes of negotiation for negotiating successfully in a variety of settings. The course is designed to be relevant to the broad spectrum of negotiation problems faced by managers, consultants, etc. A negotiation project is also required.

Prerequisites

Graduate status.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for	Yes			

In Workflow

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

Approval Path

1. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 04/05/24 2:17 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:24 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

Majors

Justification for change:

Course no longer taught. Dept requested deactivation.

Semesters previously offered as an experimental course

4. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Nov 3, 2014 by barryf (1411.1)

Co-Listed Courses:

Course Reviewer Comments

Key: 1411

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/04/24 8:38 am

Viewing: **BUS 6150 : Advanced Customer Focus and Satisfaction**

File: 2318.7

Last approved: 09/29/14 4:09 am

Last edit: 04/04/24 8:38 am

Changes proposed by: jpnfd

Requested Effective Change Date	Fall 2024 ~~2014~~
Department	Business Administration
Discipline	Business (BUS)
Course Number	6150
Title	Advanced Customer Focus and Satisfaction
Abbreviated Course Title	Advanced Customer Focus

Catalog Description

Major emphasis is given to the concept of customer focus, with coverage of techniques for obtaining customer needs, measuring customer satisfaction, developing products and services to satisfy customers, and maximizing the benefits of customer feedback. Individual focused research is included.

Prerequisites

MKT 3110 or MKT 3105 or ENG MGT 3510.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			

In Workflow

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

Approval Path

1. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 04/05/24 1:43 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 1:45 pm Jennifer Pohlsander (jpnfd): Rollback to CCC Secretary for Social

Elective for Majors	No

Justification for change:

Course no longer taught. Dept requested deactivation.

Semesters previously offered as an experimental course

Co-Listed Courses:

MKT 6150 - Advanced Customer Focus and Satisfaction

Course Reviewer Comments

jpnfd (04/05/24 1:45 pm): Rollback: Correct Dept

Sciences DSCC Chair

4. 04/05/24 2:17 pm Evie Sherlock (esdk3): Approved for CCC Secretary
5. 04/05/24 3:24 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
6. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Key: 2318

History

1. May 3, 2014 by barryf (2318.1)
2. Sep 29, 2014 by lahne (2318.5)

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/04/24 8:39 am

Viewing: **BUS 6675 : Advanced International Business**

File: 2146.5

Last approved: 09/24/14 3:47 am

Last edit: 04/04/24 8:39 am

Changes proposed by: jpnfd

Requested Effective Change Date	Fall 2024 ~~2014~~
Department	Business Administration
Discipline	Business (BUS)
Course Number	6675
Title	Advanced International Business
Abbreviated Course Title	Adv International Business

Catalog Description

Business concepts, analytical processes and philosophical bases for international business operations. Emphasis is on environmental dynamics, multinational business organizations, cultural and economic constraints, unique international business practices and international operations, strategy and policy. Research project required.

Prerequisites

MKT 3110 or MKT 5105 or Eng Mgt 3510.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for	No			

In Workflow

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

Approval Path

1. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 04/05/24 1:43 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 1:45 pm Jennifer Pohlsander (jpnfd): Rollback to CCC Secretary for Social

Majors

Justification for change:
Course no longer taught. Dept requested deactivation.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments
jpnfd (04/05/24 1:45 pm): Rollback: Correct Dept

Key: 2146

Sciences DSCC Chair
4. 04/05/24 2:17 pm Evie Sherlock (esdk3): Approved for CCC Secretary
5. 04/05/24 3:24 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
6. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Apr 28, 2014 by barryf (2146.1)
2. Sep 24, 2014 by lahne (2146.3)

Preview Bridge

Course Change Request

Date Submitted: 03/29/24 1:12 pm

Viewing: **CER ENG 4310 : Ceramic Processing**

File: 2618.5

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

Last edit: 03/29/24 1:12 pm

Changes proposed by: lipked

Programs referencing this course	CR ENG-BS: Ceramic Engineering BS

Requested Effective Change Date	Spring 2025 ~~2022~~
Department	Materials Science & Engineering
Discipline	Ceramic Engineering (CER ENG)
Course Number	4310
Title	Ceramic Processing
Abbreviated Course Title	Ceramic Processing

Catalog Description

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

Prerequisites

Cer Eng 3210 and Junior ~~Senior~~ standing.

Field Trip Statement

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

Required for Majors	Yes

In Workflow

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

Approval Path

1. 03/29/24 8:05 pm Michael Moats (moatsm): Approved for RMATSENG Chair
2. 04/04/24 12:01 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 8:37 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:47 pm

Elective for Majors	No

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for change:

Course moved in recommended sequence to Spring of Junior year, so changed pre-requisite from Senior standing to Junior standing.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

History

1. May 5, 2021 by smiller (2618.1)

Key: 2618

Preview Bridge

Course Change Request

Date Submitted: 03/29/24 1:10 pm

Viewing: CER ENG 5115 : X-Ray Diffraction Analysis

File: 178.1

Last edit: 04/16/24 12:52 pm

Changes proposed by: lipked

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Materials Science & Engineering
Discipline	Ceramic Engineering (CER ENG)
Course Number	5115
Title	X-Ray Diffraction Analysis
Abbreviated Course Title	X-Ray Diffraction Analysis

Catalog Description

Theory and practical aspects of x-ray diffraction analysis are covered including diffraction theory, qualitative and quantitative analysis techniques, electronic databases, and operation of modern powder diffractometers. ~~Students cannot receive credit for both Cer Eng 3417 and Cer Eng 5115.~~

Prerequisites

Preceded or accompanied by Cer Eng 3410.

Field Trip Statement

Credit Hours Total: 3	LEC: 2	LAB: 1	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	No			

Justification for change:

In Workflow

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

Approval Path

1. 03/29/24 8:06 pm Michael Moats (moatsm): Approved for RMATSENG Chair
2. 04/04/24 12:01 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 8:37 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:47 pm

Removing reference to CER ENG 3417 (deactivated).

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments **jpnfd (04/16/24 12:52 pm):** Updated term to Fall 2024.

Key: 178

Preview Bridge

Course Change Request

Date Submitted: 04/04/24 1:50 pm

Viewing: **CHEM 3420 : Introduction To Quantum Chemistry**

File: 268.10

Last approved: 03/25/24 6:01 am

Last edit: 04/05/24 10:58 am

Changes proposed by: esdk3

Other Courses referencing this course	In The Prerequisites: CHEM 4410 : Chemical Thermodynamics II CHEM 4420 : Chemical Kinetics II CHEM 5410 : Advanced Chemical Thermodynamics CHEM 6420 : Quantum Chemistry I CHEM 6450 : Spectroscopy CHEM 6550 : Chemical Spectroscopy

Requested Effective Change Date	Fall 2024
Department	Chemistry
Discipline	Chemistry (CHEM)
Course Number	3420
Title	Introduction To Quantum Chemistry
Abbreviated Course Title	Intro To Quantum Chem

Catalog Description

A study of molecular structures and spectroscopy, statistical thermodynamics, kinetic theory, chemical kinetics, crystals, and liquids.

Prerequisites

Physics 2135 or Physics 2111; preceded or accompanied by Math 2222.

Field Trip Statement

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

In Workflow

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

Approval Path

1. 04/04/24 6:51 pm Chariklia Sotiriou-Leventis (cslevent): Approved for RCHEMIST Chair
2. 04/05/24 7:22 am Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 10:18 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair

Total: 3

Required for Majors	Yes
Elective for Majors	No

4. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for change:

This course was erroneously deactivated and is still needed for current students progressing through catalog years before FS24. It is being put back through CCC/FS for reactivation, effective Fall 2024.

Course being dropped in lieu of two new courses of different scope. Two new courses, CHem 2410 and 2420, required in the revised BS and BA degrees will cover the content of 3410, 3420, and 3430 but i two semesters rather than 3. All other disciplines have two core classes and this action aligns the p-chem series with other disciplines.

History

1. Apr 25, 2014 by tschuman (268.1)
2. Nov 8, 2014 by woelkk (268.7)
3. Mar 25, 2024 by tschuman (268.9)

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments	**esdk3 (04/05/24 10:58 am):** This course was erroneously deactivated and is still needed for current students progressing through catalog years before FS24. It is being put back through CCC/FS for reactivation, effective Fall 2024. - es 4/5/24

Key: 268

Preview Bridge

Course Change Request

Date Submitted: 04/04/24 1:50 pm

Viewing: **CHEM 3430 : Chemical Kinetics I**

File: 231.3

Last approved: 03/25/24 6:01 am

Last edit: 04/05/24 10:58 am

Changes proposed by: esdk3

Other Courses referencing this course	In The Prerequisites: CHEM 5430 : Advanced Chemical Kinetics CHEM 5510 : Introduction to Chemical Analysis CHEM 6430 : Chemical Kinetics CHEM 6570 : Electrochemistry

Requested Effective Change Date	Fall 2024
Department	Chemistry
Discipline	Chemistry (CHEM)
Course Number	3430
Title	Chemical Kinetics I
Abbreviated Course Title	Chemical Kinetics I

Catalog Description

A study of kinetic theory, chemical kinetics, electromotive force and ionic equilibria.

Prerequisites

Chem 3410.

Field Trip Statement

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

Required for Majors	No

In Workflow

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

Approval Path

1. 04/04/24 6:51 pm Chariklia Sotiriou-Leventis (cslevent): Approved for RCHEMIST Chair
2. 04/05/24 7:22 am Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 10:18 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair

Elective for Majors	No

Justification for change:

This course was erroneously deactivated and is still needed for current students progressing through catalog years before FS24. It is being put back through CCC/FS for reactivation, effective Fall 2024.

Course is being replaced in all curricula beginning fall 2024

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments	**esdk3 (04/05/24 10:58 am):** This course was erroneously deactivated and is still needed for current students progressing through catalog years before FS24. It is being put back through CCC/FS for reactivation, effective Fall 2024. - es 4/5/24

4. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Mar 25, 2024 by tschuman (231.1)

Key: 231

Preview Bridge

Course Change Request

Date Submitted: 04/04/24 4:14 pm

Viewing: **CHEM ENG 2110 : Chemical Engineering Thermodynamics I**

File: 2041.6

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

Last edit: 04/05/24 2:27 pm

Changes proposed by: luksc

Programs referencing this course	CH ENG-BS: Chemical Engineering BS PROPOSED: Biomedical Engineering BS EV ENG-BS: Environmental Engineering BS
Other Courses referencing this course	In The Prerequisites: CHEM ENG 3101 : Fundamentals of Transport in Chemical and Biochemical Engineering CHEM ENG 3120 : Chemical Engineering Thermodynamics II CHEM ENG 5315 : Corrosion and Its Prevention MET ENG 3220 : Introduction To Extractive Metallurgy

Requested Effective Change Date	Spring 2025 ~~2023~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	2110
Title	Chemical Engineering Thermodynamics I
Abbreviated Course Title	Chem Engr Thermo I

Catalog Description

Development and application of the laws and fundamental relationships of thermodynamics to industrial chemical processes. Emphasis is placed on the estimation of thermophysical property values for applications in chemical process engineering.

Prerequisites

In Workflow

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

Approval Path

1. 04/04/24 9:48 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 04/05/24 2:27 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/12/24 8:31 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:47 pm Jennifer Pohlsander

~~A grade of "C" or better in Math 2222;~~ Preceded or accompanied by Chem Eng 2100 and Math 2222 and Math 3304. ~~2100.~~

Field Trip Statement				
Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	No			

(jpnfd): Approved for Pending CCC Agenda post

History

1. May 4, 2015 by luksc (2041.1)
2. Jun 16, 2022 by luksc (2041.4)

Justification for change:	This course is being proposed for new degree programs where the order of Math 2222 and Math 3304 may be different. If the students will have both courses completed by the end of the semester, we can continue to teach the course at the appropriate level and the students will be prepared to enroll in Thermo II in the following semester.
Semesters previously offered as an experimental course	
Co-Listed Courses:	

Course Reviewer Comments	**jpnfd (04/05/24 1:52 pm):** Updated effective date to Fall 2024. **esdk3 (04/05/24 2:27 pm):** updated to SP25 as the addition of MATH 3304 to the prerequisite makes this an affecting change. es 4/5/24

Key: 2041

Preview Bridge

Course Change Request

Date Submitted: 04/04/24 4:16 pm

Viewing: **CHEM ENG 4101 : Chemical Engineering Laboratory I**

File: 4283.14

Last approved: 03/22/21 6:01 am

Last edit: 04/05/24 2:30 pm

Changes proposed by: luksc

Programs referencing this course	CH ENG-BS: Chemical Engineering BS

Requested Effective Change Date	Fall 2024 ~~Spring 2022~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4101
Title	Chemical Engineering Laboratory I
Abbreviated Course Title	Chem Eng Lab I

Catalog Description

Experiments associated with unit operations involving fluid flow and heat transfer. Principles of data and uncertainty analysis are introduced with emphasis on model building. Communication skills are stressed. This is a communication emphasized course.

Prerequisites

Chem Eng 3141, ~~Stat 3113~~ and either Stat 3113 ~~Chem Eng 3141; Preceded~~ or Stat 3115; Preceded or accompanied by Chem Eng ~~ChemEng~~ 4110.

Field Trip Statement

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

In Workflow

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

Approval Path

1. 04/04/24 9:49 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 04/05/24 2:30 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/12/24 8:31 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:47 pm Jennifer Pohlsander

Required for Majors	Yes
Elective for Majors	No

Justification for change:

Statistics transfers in as Stat 3115. Stat 3113 is still the preference for the curriculum, but we will allow transfer credit.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments	**esdk3 (04/05/24 2:30 pm):** added comma to prerequisite so that it is correct. This is non-affecting as it is only adding Stat 3115 as an option in place of Stat 3113. es 4/5

(jpnfd): Approved for Pending CCC Agenda post

History

1. May 24, 2016 by Daniel Forciniti (forcinit)
2. Jul 27, 2020 by ershenb (4283.8)
3. Mar 22, 2021 by luksc (4283.11)

Key: 4283

Preview Bridge

Course Change Request

Date Submitted: 04/04/24 4:18 pm

Viewing: **CHEM ENG 4130 : Chemical Engineering Laboratory II**

File: 792.14

Last approved: 11/27/23 6:01 am

Last edit: 04/05/24 2:31 pm

Changes proposed by: luksc

Programs referencing this course	CH ENG-BS: Chemical Engineering BS

Requested Effective Change Date	Fall 2024
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4130
Title	Chemical Engineering Laboratory II
Abbreviated Course Title	Chem Eng Lab II

Catalog Description

Experiments illustrating the unit operations of continuous and staged separation. Experimental design methods are extended to include the principles of regression and model building. Communication skills are stressed. This is a communication emphasized course.

Prerequisites

Chem Eng 3141 and Chem Eng 3131 and either Stat 3113 ~~3113, Chem Eng 3141 and Chem Eng 3131; preceded~~ or Stat 3115; preceded or accompanied by Chem Eng 3150 and ~~and~~ English 3560.

Field Trip Statement

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

In Workflow

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

Approval Path

1. 04/04/24 9:49 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 04/05/24 2:32 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/12/24 8:31 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:47 pm Jennifer Pohlsander

Total: 3

Required for Majors	Yes
Elective for Majors	No

Justification for change:

This allows students to transfer in their statistics course. The curriculum still is set to Stat 3113 for students who take the course at S&T

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments	**esdk3 (04/05/24 2:31 pm):** this is non-affecting as it is adding Stat 3115 as an option along side Stat 3113. es 4/5

(jpnfd): Approved for Pending CCC Agenda post

History

1. May 24, 2016 by forcinit (792.1)
2. Jul 27, 2020 by ershenb (792.7)
3. May 10, 2021 by luksc (792.10)
4. Nov 27, 2023 by luksc (792.12)

Key: 792

Preview Bridge

Course Change Request

Date Submitted: 03/14/24 9:17 am

Viewing: **COMP ENG 6110 : Advanced Computer Architecture I**

File: 848.5

Last approved: 04/25/20 6:01 am

Last edit: 03/14/24 1:53 pm

Changes proposed by: stanleyj

Other Courses referencing this course	In The Catalog Description: COMP SCI 6801 : Topics in Parallel and Distributed Computing In The Prerequisites: COMP ENG 6120 : Advanced Computer Architecture II

Requested Effective Change Date	Fall 2024 ~~2020~~
Department	Electrical and Computer Engineering
Discipline	Computer Engineering (COMP ENG)
Course Number	6110
Title	Advanced Computer Architecture I
Abbreviated Course Title	Adv Comp Architect I

Catalog Description

Advanced topics in computer structures, parallel processors, and computer networks. Emphasis on their design, applications, and performance.

Prerequisites

Comp Eng 5110 or Comp Eng 5120.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	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. CAT entry
11. Peoplesoft

Approval Path

1. 02/24/24 6:47 pm Jonathan Kimball (kimballjw): Approved for RELECENG Chair
2. 03/12/24 10:35 am Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 03/14/24 11:59 am Jonathan Kimball (kimballjw): Approved for RELECENG Chair
4. 03/14/24 1:53 pm

Elective for Majors	No

Justification for change:

Change the co-listed course number from COMP SCI 6801 to COMP SCI 6110 (same title). The current course number COMP SCI 6801 is incorrect.

Semesters previously offered as an experimental course

Co-Listed Courses:

~~COMP SCI 6801~~ - ~~Topics in Parallel and Distributed Computing~~

COMP SCI 6110 - Course Not Found

Course Reviewer Comments

jpnfd (03/12/24 10:35 am): Rollback: Update Comp Sci co-list course number.

jpnfd (03/14/24 1:53 pm): Added Comp Sci 6110 as a co-listed course (Comp Sci 6110: Advanced Computer Architecture I). Comp Sci department chair approved of co-list per email 3/12/24.

Jennifer Pohlsander (jpnfd): Approved for CCC Secretary

5. 04/05/24 8:37 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
6. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 24, 2016 by kleb6b (848.1)
2. Apr 25, 2020 by stanleyj (848.3)

Key: 848

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/05/24 2:34 pm

Viewing: **COMP ENG 6430 : High Speed Networks**

File: 1724.1

Last edit: 04/05/24 2:34 pm

Changes proposed by: esdk3

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Electrical and Computer Engineering
Discipline	Computer Engineering (COMP ENG)
Course Number	6430
Title	High Speed Networks
Abbreviated Course Title	High Speed Networks

Catalog Description

A state-of-the-art survey of high-speed networks, modeling and simulation, quality of service (QoS) for multimedia applications and management schemes, TCP congestion control, ATM and Internet traffic management, Internet Service Architecture (ISA), and Internet routing protocols.

Prerequisites

Comp Eng 5410 and hardware competency for ECE students, Comp Sci 4600 for computer science students, or consent of the instructor.

Field Trip Statement

Credit Hours Total: 3	LEC: 2	LAB: 1	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	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. CAT entry
11. Peoplesoft

Approval Path

1. 04/05/24 2:35 pm Evie Sherlock (esdk3): Approved for RELECENG Chair
2. 04/05/24 2:39 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/12/24 8:31 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:47 pm

Justification for change:

submitting correctly; originally submitted by the department as course change with the justification that read: "eliminate this course it has not been offered for several years"

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 1724

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 03/25/24 3:13 pm

Viewing: **COMP SCI 5480 : Introduction to Deep Learning**

File: 5070

Last edit: 03/29/24 11:30 am

Changes proposed by: tlbh9

Requested Effective Change Date	Fall 2024
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	5480
Title	Introduction to Deep Learning
Abbreviated Course Title	Intro to Deep Learning

Catalog Description

This course aims to offer a comprehensive exploration of the foundational concepts, core principles and algorithms underpinning deep learning. Topics would cover neural networks, loss functions, gradients and initialization, regularization, convolutional neural networks, residual networks, transformers, and so on. Students will also gain hands-on experience with PyTorch, the most popular programming framework for deep learning.

Prerequisites

A grade of "C" or higher in Comp Sci 2500, Comp Sci 3108, and in one of Stat 3113, Stat 3115, Stat 3117, or Stat 5643.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for	No			

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. CAT entry
11. Peoplesoft

Approval Path

1. 03/25/24 3:15 pm Seung-Jong Park (spxzb): Approved for RCOMPSCI Chair
2. 03/29/24 11:30 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 8:37 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:48 pm

Majors	Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for new course:

The Experimental Course "Introduction to Deep Learning" has been taught twice before (first as Comp Sci 5001.001 and later as Comp Sci 5001.104 in spring 2024 with 40 students). This course has high demand from students and is a very important CS course.

Semesters previously offered as an experimental course	Fall 2017- Enrollment 50 Spring 2024- Enrollment 41
Co-Listed Courses:	
Course Reviewer Comments	**jpnfd (03/29/24 11:30 am):** Added enrollment numbers for Fall 2017 & SP 2024.

Key: 5070

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/28/24 9:23 am

Viewing: **ECON 4230 : Money And Banking**

File: 464.1

Last edit: 03/28/24 9:24 am

Changes proposed by: mlc2d

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Economics
Discipline	Economics (ECON)
Course Number	4230
Title	Money And Banking
Abbreviated Course Title	Money & Banking

Catalog Description

Study of the origin, principles, and functions of money, emphasizing the role of banks in the effectuation of monetary policies geared to achieve various economic and political goals.

Prerequisites

Econ 2200.

Field Trip Statement

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

Required for Majors	No
Elective for Majors	No

Justification for

In Workflow

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

Approval Path

1. 03/28/24 9:27 am Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 03/29/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/29/24 4:07 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:48 pm

change:

No faculty resources to teach this course.

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments **jpnfd (03/28/24 9:24 am):** Updated term to Fall 2024.

Key: 464

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/28/24 9:24 am

Viewing: **ECON 4730 : Economic Development**

File: 476.1

Last edit: 03/28/24 9:24 am

Changes proposed by: mlc2d

Programs referencing this course	GS ECON-MI: Global Sustainable Economics Minor IN ECN-MI: International Economics Minor

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Economics
Discipline	Economics (ECON)
Course Number	4730
Title	Economic Development
Abbreviated Course Title	Economic Development

Catalog Description

Theoretical analysis of the problem of economic development of the "poor" countries, where two-thirds of the world's population lives. Treatment of basic problem areas leading to a synthesis of theoretical approaches for the achievement of development.

Prerequisites

Econ 2100 or 2200.

Field Trip Statement

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

In Workflow

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

Approval Path

1. 03/28/24 9:28 am Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 03/29/24 3:52 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/29/24 4:07 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:48 pm

Required for Majors	No
Elective for Majors	No

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for change:	No faculty resources to teach this course.
Semesters previously offered as an experimental course	
Co-Listed Courses:	

Course Reviewer Comments

Key: 476

Preview Bridge

Course Change Request

Date Submitted: 03/18/24 2:35 pm

Viewing: **ECON 5380 ~~5350~~ : Data Intelligence using Case Studies**

File: 4943.9

Last approved: 06/06/23 6:01 am

Last edit: 04/05/24 2:42 pm

Changes proposed by: davismc

Programs referencing this course	ECON-BS: Economics BS DDA-CTU: Decision Data Analytics - CTU Q ECON-MI: Quantitative Economics Minor

Requested Effective Change Date	Fall 2024 ~~2023~~
Department	Economics
Discipline	Economics (ECON)
Course Number	5380 ~~5350~~
Title	Data Intelligence using Case Studies
Abbreviated Course Title	Data Case Studies

Catalog Description

This course designates a corporate executive to teach students the processes of data collecting, analyzing, visualization, and statistical tests with case studies from various industries. Students will have the opportunity to do group projects showcasing their ability to apply data intelligence in real-world scenarios using Python programming.

Prerequisites

Econ 1100 and Econ 1200 and one of the following: Stat 1115, Stat 3111, Stat 3113, Stat 3115, or Stat 3117.

Field Trip Statement

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

In Workflow

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

Approval Path

1. 03/21/24 2:25 pm Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 04/05/24 2:44 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:24 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:48 pm Jennifer

Total: 3

Required for Majors	No
Elective for Majors	Yes

Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 6, 2023 by Michael Davis (davismc)

Justification for change:

This course is now a follow up class for 5360, so the course numbering should be updated so that this comes after 5360.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments **esdk3 (04/05/24 2:42 pm):** updated effective date to Fall 2024. es 4/5/24

Key: 4943

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/29/24 10:17 am

Viewing: **ELEC ENG 5330 : Fuzzy Logic Control**

File: 2530.3

Last approved: 09/21/15 3:55 am

Last edit: 03/29/24 2:12 pm

Changes proposed by: kte

Requested Effective Change Date	Fall 2024 ~~01/12/2016~~
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	5330
Title	Fuzzy Logic Control
Abbreviated Course Title	Fuzzy Logic Control

Catalog Description

A mathematical introduction to the analysis, synthesis, and design of control systems using fuzzy sets and fuzzy logic. A study of the fundamentals of fuzzy sets, operations on these sets, and their geometrical interpretations. Methodologies to design fuzzy models and feedback controllers for dynamical systems. Various applications and case studies.

Prerequisites

Elec Eng 3320.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for	Yes			

In Workflow

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

Approval Path

1. 03/29/24 10:26 am
   Jonathan Kimball (kimballjw): Approved for RELECENG Chair
2. 03/29/24 2:12 pm
   Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 8:38 am
   Mark Fitch (mfitch): Approved for Engineering DSCC Chair

Majors

Justification for change:

This course has not been taught in several years. The faculty that has always taught this course is planning to retire within a year.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Sep 21, 2015 by martins (2530.1)

Key: 2530

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/29/24 10:18 am

Viewing: **ELEC ENG 6390 : Current Topics In Control Theory**

File: 558.1

Last edit: 03/29/24 3:54 pm

Changes proposed by: kte

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	6390
Title	Current Topics In Control Theory
Abbreviated Course Title	Current Topcs Cntrl Theo

Catalog Description

Topics of current interest in control theory literature. Offered as interest and demand warrant.

Prerequisites

Consent of instructor.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	No			

Justification for change:

In Workflow

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

Approval Path

1. 03/29/24 10:27 am
   Jonathan Kimball (kimballjw): Approved for RELECENG Chair
2. 03/29/24 3:54 pm
   Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 8:38 am
   Mark Fitch (mfitch): Approved for Engineering DSCC Chair

Course has not been taught for many years. No longer needed.

4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 558

Preview Bridge

Course Change Request

Date Submitted: 04/11/24 7:16 am

Viewing: **ENG MGT 5414 : Introduction To Operations Research**

File: 594.1

Last edit: 04/12/24 9:36 am

Changes proposed by: enke

Programs referencing this course	ENG MG-BS: Engineering Management BS
Other Courses referencing this course	In The Prerequisites: ENG MGT 6413 : Advanced Engineering Management Science

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Engineering Management and Systems Engineering
Discipline	Engineering Management (ENG MGT)
Course Number	5414
Title	Introduction To Operations Research
Abbreviated Course Title	Intro To Operations Res

Catalog Description

Mathematical methods for modeling and analyzing industrial systems, topics including linear programming, transportation models, and network models.

Prerequisites

Stat 3115 or Stat 3117. Senior or graduate standing.

Field Trip Statement

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

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. 04/11/24 7:18 am David Enke (enke): Approved for RENGMNGT Chair
2. 04/12/24 9:35 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/16/24 10:41 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair

Total: 3

Required for Majors	No
Elective for Majors	No

4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for change:	Adding "Senior or graduate standing" so the course can be taken for graduate credit by undergraduate students in the GTP program.
Semesters previously offered as an experimental course	
Co-Listed Courses:	

Course Reviewer Comments

Key: 594

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/27/24 11:02 am

Viewing: **ENG MGT 5714 : Statistical Process Control**

File: 601.1

Last edit: 04/05/24 2:55 pm

Changes proposed by: enke

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Engineering Management and Systems Engineering
Discipline	Engineering Management (ENG MGT)
Course Number	5714
Title	Statistical Process Control
Abbreviated Course Title	Statistical Proc Control

Catalog Description

The theoretical basis of statistical process control procedures is studied. Quantitative aspects of SPC implementation are introduced in context along with a review of Deming's principles of quality improvement and a brief introduction to sampling inspection.

Prerequisites

Stat 3115, or Stat 3117.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	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. CAT entry
11. Peoplesoft

Approval Path

1. 03/27/24 11:02 am
   David Enke (enke): Approved for RENGMNGT Chair
2. 04/05/24 2:55 pm
   Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/12/24 8:31 am
   Mark Fitch (mfitch): Approved for Engineering DSCC

Justification for change:
Course no longer offered.

Semesters previously offered as an experimental course

Co-Listed Courses:

Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Course Reviewer Comments **esdk3 (04/05/24 2:55 pm):** updated effective date to Fall 24

Key: 601

Preview Bridge

Course Change Request

Date Submitted: 04/11/24 7:09 am

Viewing: **ENG MGT 6110 : Case Studies In General Management**

File: 607.1

Last edit: 04/12/24 9:36 am

Changes proposed by: enke

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Engineering Management and Systems Engineering
Discipline	Engineering Management (ENG MGT)
Course Number	6110
Title	Case Studies In General Management
Abbreviated Course Title	Case Studies In Gen Mgt

Catalog Description

A quantitative study of engineering management problems related to the functioning of the industrial enterprise through case studies.

Prerequisites

Graduate standing. ~~Preceded or accompanied by an Eng Mgt 6000 level course.~~

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	No			

Justification for change:

No longer a capstone course, so taking, or having taken a previous 6000 level course

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. 04/11/24 7:18 am David Enke (enke): Approved for RENGMNGT Chair
2. 04/12/24 9:36 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/16/24 10:42 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair

is no longer required.

4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 607

Preview Bridge

Course Change Request

Date Submitted: 04/11/24 7:12 am

Viewing: **ENG MGT 6211 : Advanced Financial Management**

File: 609.1

Last edit: 04/12/24 9:37 am

Changes proposed by: enke

Programs referencing this course	ENG MGT-CT: Engineering Mgt CT FIN ENG-CT: Financial Engineering CT ENG MG-MS: Engineering Management MS

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Engineering Management and Systems Engineering
Discipline	Engineering Management (ENG MGT)
Course Number	6211
Title	Advanced Financial Management
Abbreviated Course Title	Advanced Financial Mgt

Catalog Description

Principles of financial organization and management in the technological enterprise; demands for funds; internal and external supply of funds; budgetary control; reserve and dividends policy. Emphasizes systems approach and problems of engineering design and automation as they influence financial decisions.

Prerequisites

Graduate standing. ~~Eng Mgt 1210 or 5210.~~

Field Trip Statement

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

Required for Majors	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. CAT entry
11. Peoplesoft

Approval Path

1. 04/11/24 7:19 am David Enke (enke): Approved for RENGMNGT Chair
2. 04/12/24 9:37 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/16/24 10:42 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair

Elective for Majors	No

4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for change:

Most of the content in ENG MGT 5210 is not needed for ENG MGT 6211. The ENG MGT 5210 material that is helpful can be learned independently by the student, and/or reviewed by the instructor.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 609

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/27/24 10:50 am

Viewing: **ENG MGT 6214 : Financial Engineering II**

File: 2049.1

Last edit: 04/05/24 2:55 pm

Changes proposed by: enke

Other Courses referencing this course	In The Catalog Description: SYS ENG 6614 : Financial Engineering II

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Engineering Management and Systems Engineering
Discipline	Engineering Management (ENG MGT)
Course Number	6214
Title	Financial Engineering II
Abbreviated Course Title	Financial Engineering II

Catalog Description

This course introduces advanced topics in financial engineering, which includes introduction to Wienver processes, martingales and Ito's lemma; basic numerical methods for options pricing, exotic options; interest rate models; stochastic volatility models and jump-diffusion models; and value-at-risk.

Prerequisites

Eng Mgt 6213/Sys Eng 6613.

Field Trip Statement

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

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. 03/27/24 10:54 am
   David Enke (enke): Approved for RENGMNGT Chair
2. 04/05/24 2:56 pm
   Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/12/24 8:31 am
   Mark Fitch (mfitch): Approved for Engineering DSCC

Required for Majors	No
Elective for Majors	No

Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for change:
Course is no longer offered.

Semesters previously offered as an experimental course

Co-Listed Courses: SYS ENG 6614 - Financial Engineering II

Course Reviewer Comments **esdk3 (04/05/24 2:55 pm):** updated effective date to Fall 24

Key: 2049

Preview Bridge

Course Change Request

Date Submitted: 04/11/24 7:10 am

Viewing: **ENG MGT 6510 : Technological Innovation Management**

File: 606.1

Last edit: 04/12/24 9:37 am

Changes proposed by: enke

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Engineering Management and Systems Engineering
Discipline	Engineering Management (ENG MGT)
Course Number	6510
Title	Technological Innovation Management
Abbreviated Course Title	Technolog Innovation Mgt

Catalog Description

Technological innovation is new technology creating new products and services. This course studies the issues of managing technological innovation under four topics: 1) Innovation; 2) New Ventures; 3) Corporate Research & 4) R&D Infrastructure.

Prerequisites

Graduate standing. ~~Eng Mgt 5111.~~

Field Trip Statement

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

Required for Majors	No
Elective for Majors	No

Justification for change:

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. 04/11/24 7:19 am David Enke (enke): Approved for RENGMNGT Chair
2. 04/12/24 9:37 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/16/24 10:42 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair

After course updates, ENG MGT 5111 is no longer required to take this course.

4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 606

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/12/24 12:44 pm

Viewing: **ENGLISH 1223 : Introduction To American Studies**

File: 639.1

Last edit: 04/12/24 12:58 pm

Changes proposed by: kswenson

Programs referencing this course	AM STU-MI: American Studies Minor
Other Courses referencing this course	In The Prerequisites: ENGLISH 3228 : The American Experience

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	English and Technical Communication
Discipline	English (ENGLISH)
Course Number	1223
Title	Introduction To American Studies
Abbreviated Course Title	Intro American Studies

Catalog Description

Introduces the core subjects as well as the methods and theories that constitute the field of American Studies.

Prerequisites

Field Trip Statement

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. 03/28/24 10:09 am
   Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 04/12/24 10:13 am
   Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 04/12/24 12:46 pm
   Kristine Swenson (kswenson):

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	No			

Justification for change:

This course has not been offered in many years.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

jpnfd (04/12/24 10:13 am): Rollback: This course is listed on the Econ BS. Econ needs to submit a DC form showing this course removed. The Econ DC form needs to go through workflow along with the deactivation of English 1223. Please resubmit this deactivation at the same time as the Econ BS form.
jpnfd (04/12/24 12:58 pm): Updated term to Fall 2024.

Approved for RENGLISH Chair
4. 04/12/24 12:59 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
5. 04/12/24 1:36 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
6. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Key: 639

Preview Bridge

Course Change Request

Date Submitted: 03/28/24 10:48 am

Viewing: **ENGLISH 3101 : Advanced Composition**

File: 1384.1

Last edit: 04/05/24 5:19 pm

Changes proposed by: kswenson

Programs referencing this course	PRE LAW-MI: Pre Law Minor WRTG-MI: Writing Minor

Requested Effective Change Date	Spring 2025 ~~07/01/2024~~
Department	English and Technical Communication
Discipline	English (ENGLISH)
Course Number	3101
Title	Advanced Composition
Abbreviated Course Title	Advanced Composition

Catalog Description

Instruction and practice in writing expository essays of substantial content and skill, with particular emphasis on the rhetorical applications of recent findings in language research. Papers required will include critical analyses of literary works, and library research.

Prerequisites

English 1160 ~~or 3560.~~

Field Trip Statement

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

Required for Majors	No

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. 03/28/24 11:05 am
   Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 04/05/24 2:58 pm
   Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 5:19 pm
   Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

Elective for Majors	Yes ~~No~~

4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for change:

Eliminating irrelevant prerequisite.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments	**esdk3 (04/05/24 2:58 pm):** affecting change, updated term to Spring 25 -es 4/5

Key: 1384

Preview Bridge

Course Change Request

Date Submitted: 03/28/24 10:46 am

Viewing: **ENGLISH 3560 : Technical Writing**

File: 673.4

Last approved: 06/12/21 6:01 am

Last edit: 04/05/24 5:22 pm

Changes proposed by: kswenson

Catalog Pages referencing this course	Degree Programs
Programs referencing this course	NU ENG-BS: Nuclear Engineering BS PE ENG-BS: Petroleum Engineering BS PHYSIC-BS: Physics BS TCH COM-BS: Technical Communication BS AE ENG-BS: Aerospace Engineering BS AP MATH-BS: Applied Mathematics BS BIO SC-BA: Biological Sciences BA CH ENG-BS: Chemical Engineering BS CV ENG-BS: Civil Engineering BS CP ENG-BS: Computer Engineering BS EL ENG-BS: Electrical Engineering BS GE ENG-BS: Geological Engineering BS CHEM-BS: Chemistry BS WRTG-MI: Writing Minor HISTORY-BS: Bachelor of Science in History CMP SC-BS: Computer Science BS TCH CM-CTU: Technical Communication CTU ECON-BA: Economics BA ENV SCI-BS: Environmental Science BS PROPOSED: Biomedical Engineering BS ENG MG-BS: Engineering Management BS EV ENG-BS: Environmental Engineering BS GL&GPH-BS: Geology and Geophysics BS MC ENG-BS: Mechanical Engineering BS MT ENG-BS: Metallurgical Engineering BS MI ENG-BS: Mining Engineering BS
Other Courses referencing this	In The Prerequisites: CHEM ENG 4091 : Chemical Process Design I

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. 03/28/24 11:05 am
   Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 04/05/24 2:58 pm
   Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 5:23 pm
   Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

course	CHEM ENG 4130 : Chemical Engineering Laboratory II COMP ENG 4096 : Computer Engineering Senior Project I ELEC ENG 4096 : Electrical Engineering Senior Project I ENGLISH 5571 : Advanced Writing For Science & Engineering ENGLISH 5572 : Advanced Writing For Science And Engineering II

4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jul 27, 2020 by kswenson (673.1)
2. Jun 12, 2021 by tibbettsmg (673.3)

Requested Effective Change Date	Fall 2024 ~~2020~~
Department	English and Technical Communication
Discipline	English (ENGLISH)
Course Number	3560
Title	Technical Writing
Abbreviated Course Title	Technical Writing

Catalog Description	The theory and practice of writing technical documents ~~papers~~ and reports in the professions.
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 ~~No~~

Justification for change:	Updated language to reflect current usage.
Semesters previously offered as an experimental course	
Co-Listed Courses:	

Course Reviewer Comments	**esdk3 (04/05/24 2:58 pm):** changed effective date to Fall 24 - es 4/5

Preview Bridge

Course Change Request

Date Submitted: 03/15/24 4:28 pm

Viewing: **FINANCE 5310 : Financial Technology and Analytics**

File: 4499.11

Last approved: 05/04/23 6:01 am

Last edit: 04/12/24 10:34 am

Changes proposed by: cecq8z

Programs referencing this course	BUS&MS-BS: Business and Mgmt Systems BS FIN TCH-MI: Minor in Financial Technology, Analytics and Transformation FINANCE-CT: Finance CT FIN TCH-CT: Financial Technology, Analytics and Transformation CT FINANCE-MI: Finance Minor

Requested Effective Change Date	Fall 2024 ~~2023~~
Department	Business Administration
Discipline	Finance (FINANCE)
Course Number	5310
Title	Financial Technology and Analytics
Abbreviated Course Title	Tech and Analytics

Catalog Description

This course introduces the foundations of emerging technologies such as AI&ML, Open Banking, Internet of Things, and Blockchain that are re-shaping the finance sector. ~~financial technologies.~~ The applications of technologies such as mobile payments, P2P lending, algorithmic trading, robo-advising, challenging banks and IoT insurance, will be introduced. The competitive landscape and new business models will be studied. ~~Topics cover Robo-Advising, P2P Lending, AI&ML, Open Banking and Blockchain.Data analytics tools and quantitative methods are used to create financial models for financial data analysis.The objective is to offer students opportunities to experience hands-on numerical analyses.~~

Prerequisites

In Workflow

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

Approval Path

1. 03/23/24 8:13 pm Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 04/12/24 11:45 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/12/24 11:49 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences

Finance 2150 or Graduate Standing and basic corporate finance knowledge.				
Field Trip Statement				
Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	Yes			

Justification for change: Clarify topics	
Semesters previously offered as an experimental course	
Co-Listed Courses:	

Course Reviewer Comments	**esdk3 (04/05/24 4:23 pm):** corrected effective date - es 4/5 **jpnfd (04/12/24 10:34 am):** When asked if more than 50% of content was being changed, department email 4/9/24 states, "My understanding is they are just making it more specific. If you look at the description, it is the same topics. They are just stating what application domains they will be studying."

DSCC Chair

4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Feb 5, 2018 by barryf
2. Dec 3, 2018 by ershenb (4499.4)
3. Sep 28, 2020 by cecq8z (4499.6)
4. May 4, 2023 by cecq8z (4499.8)

Key: 4499

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/23/24 6:02 pm

Viewing: **FINANCE 6230 : Advanced Mathematical Finance**

File: 1936.1

Last edit: 04/05/24 3:01 pm

Changes proposed by: cecq8z

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Business and Information Tech
Discipline	Finance (FINANCE)
Course Number	6230
Title	Advanced Mathematical Finance
Abbreviated Course Title	Adv Mathematical Finance

Catalog Description

Topics include exotic options, liquidity, volatility surfaces, discrete hedging, market jumps, calibrating to market, modeling yield curves and related products, convertible bonds, credit derivatives, various hybrid derivatives, applicable numerical methods.

Prerequisites

Finance 2150.

Field Trip Statement

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

Required for Majors	No
Elective for Majors	No

Justification for

In Workflow

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

Approval Path

1. 04/01/24 3:06 pm Cassie Elrod (cassa): Approved for RBUS&IT Chair
2. 04/05/24 3:01 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:25 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:48 pm Jennifer

change:

No one to teach course

Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments **esdk3 (04/05/24 3:01 pm):** updated effective date to Fall 2024 - es 4/5

Key: 1936

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 03/22/24 9:55 am

Viewing: **GEOLOGY 1001 : Special Topics**

File: 5068

Last edit: 03/22/24 9:55 am

Changes proposed by: liukh

Requested Effective Change Date	Fall 2024
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geology (GEOLOGY)
Course Number	1001
Title	Special Topics
Abbreviated Course Title	Special Topics
Topics Titles	

Catalog Description

This course is designed to give the department an opportunity to test a new course. Variable title.

Prerequisites

Field Trip Statement

Credit Hours Total: 0-6	LEC: 0-6	LAB: 0-1	IND: 0	RSD: 0

Required for Majors	No
Elective for Majors	Yes

Justification for

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. 03/22/24 9:56 am Stephen Gao (sgao): Approved for RGEOSENG Chair
2. 03/29/24 11:12 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/09/24 2:53 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 04/18/24 3:49 pm

new course:

This new course allows us try out new ideas and make sure they work well before adding them to our main program. It helps us keep our classes up-to-date and effective for students.

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 5068

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 03/14/24 4:47 pm

Viewing: **HISTORY 3200 : History of Eastern Europe**

File: 5065

Last edit: 03/17/24 11:09 am

Changes proposed by: sfogg

Programs referencing this course	PROPOSED: Russian and Eurasian Studies CTU

Requested Effective Change Date	Fall 2024
Department	History and Political Science
Discipline	History (HISTORY)
Course Number	3200
Title	History of Eastern Europe
Abbreviated Course Title	Eastern Europe

Catalog Description

This course surveys the history of Eastern Europe from the 17th century to the present, with special emphasis on the politics of nationalism, the Second World War, and the socialist era. In addition, it will explore the region's cultural diversity through literature, film, games, and cuisine.

Prerequisites

History 1100 or History 1200 or History 1300 or History 1310 or Pol Sci 1200.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for	No			

In Workflow

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

Approval Path

1. 03/14/24 4:48 pm Shannon Fogg (sfogg): Approved for RHISTORY Chair
2. 03/15/24 9:57 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/17/24 11:10 am Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

Majors

Elective for Majors: Yes

Justification for new course:
It is now part of the Russian and Eurasian Studies Certificate to be offered in Fall 2024 and needs a permanent course number.

Semesters previously offered as an experimental course
Spring 2023

Co-Listed Courses:

Course Reviewer Comments
jpnfd (04/02/24 10:55 am): Rollback: Awaiting approval of the Russian and Eurasian Studies Certificate. This course needs to go to CCC with the cert.

4. 03/19/24 7:47 am Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post
5. 04/02/24 10:55 am Jennifer Pohlsander (jpnfd): Rollback to Pending CCC Agenda post for CCC Meeting Agenda
6. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Key: 5065

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/04/24 8:39 am

Viewing: **IS&T 3321 : Network Performance Design And Management**

File: 1478.3

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

Last edit: 04/04/24 8:39 am

Changes proposed by: jpnfd

Requested Effective Change Date	Fall 2024 ~~2014~~
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	3321
Title	Network Performance Design And Management
Abbreviated Course Title	Netwrk Perform Dsgn&Mgt

Catalog Description

This course provides analytical capabilities needed to effectively design, deploy, and manage computer networks and protocols.

Prerequisites

IS&T 3333.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	No			

In Workflow

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

Approval Path

1. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 04/05/24 3:02 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:25 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:49 pm

Justification for change:

Course no longer taught. Dept requested deactivation.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Apr 25, 2014 by lahne (1478.1)

Key: 1478

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/05/24 2:21 pm

Viewing: **IS&T 5168 : Law and Ethics in E-Commerce**

File: 1068.1

Last edit: 03/05/24 2:21 pm

Changes proposed by: cecq8z

Programs referencing this course	PRE LAW-MI: Pre Law Minor HCI-MI: Human-Computer Interaction and User Experience Minor DIGITMD-CT: Digital Media & Web Design CT E&S COM-CT: Electronic & Social Commerce CT HCI-CT: Human Computer Interaction CT MOBLB&T-CT: Mobile Business and Digital Transformation CT E&S COM-MI: Electronic & Social Commerce Minor
Other Courses referencing this course	In The Catalog Description: PHILOS 4368 : Law and Ethics in E-Commerce

Requested Effective Change Date	Fall 2024 ~~2014~~
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	5168
Title	Law and Ethics in E-Commerce
Abbreviated Course Title	Law & Ethics E-Commerce

Catalog Description

Provides the ethical framework to analyze the ethical, legal, and social issues that arise for citizens and computer professionals regarding the computerization of society. Topics include: free speech, privacy, intellectual property, product liability, and professional responsibility.

In Workflow

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

Approval Path

1. 03/12/24 3:59 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 04/05/24 3:09 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/06/24 9:32 am Irina Ivliyeva (ivliyeva):

Prerequisites				
Field Trip Statement				
Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	No			

Approved for RPHILOSO Chair

4. 04/06/24 11:29 am
   Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
5. 04/06/24 11:37 am
   Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
6. 04/18/24 3:49 pm
   Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for change:
Low enrollment

Semesters previously offered as an experimental course

Co-Listed Courses: PHILOS 4368 - Law and Ethics in E-Commerce

Course Reviewer Comments

Key: 1068

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 03/15/24 2:37 pm

Viewing: **IS&T 5725 : Fundamentals of Cybersecurity Analytics**

File: 5061

Last edit: 03/15/24 2:37 pm

Changes proposed by: cecq8z

Programs referencing this course	CYBERMG-MI: Cybersecurity Management and Information Assurance Minor

Requested Effective Change Date	Fall 2024
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	5725
Title	Fundamentals of Cybersecurity Analytics
Abbreviated Course Title	Cybersecurity Analytics

Catalog Description

This course presents students with a basic understanding of cybersecurity topics, which span organizational information security policies, data breaches, awareness training, network security, application security, cloud security, data management, business continuity, and the latest cybersecurity issues.

Prerequisites

Field Trip Statement

Credit Hours Total: 0	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for	Yes			

In Workflow

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

Approval Path

1. 03/18/24 10:16 am
   Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 04/05/24 3:11 pm
   Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:25 pm
   Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:49 pm

Majors	
Elective for Majors	Yes

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for new course:	This will be a required course in the revised IS&T BS. Cybersecurity is critical. Our provost has emphasized he wants an emphasis in the area.
Semesters previously offered as an experimental course	Fall 2023
Co-Listed Courses:	

Course Reviewer Comments

Key: 5061

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/04/24 8:40 am

Viewing: **IS&T 6335 : Mobile Technology for Business**

File: 1871.10

Last approved: 02/05/18 3:29 am

Last edit: 04/04/24 8:40 am

Changes proposed by: jpnfd

Requested Effective Change Date	Fall 2024 ~~Fall 18 Prereq~~ ~~Attribute Update~~
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	6335
Title	Mobile Technology for Business
Abbreviated Course Title	Mobile Tech for Business

Catalog Description

Overview of mobile technology use in business environments. Topics include: mobile industry; mobile network and wireless standards; mobile devices; mobile web design and app development; social and user experience issues; mobile marketing and commerce. Project required.

Prerequisites

Field Trip Statement

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

Required for Majors	No
Elective for Majors	No

In Workflow

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

Approval Path

1. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 04/05/24 3:12 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:25 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:49 pm

Justification for change:

Course no longer taught. Dept requested deactivation.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 2, 2014 by barryf (1871.1)
2. Jun 30, 2014 by lahne (1871.4)
3. Feb 5, 2018 by barryf (1871.6)

Key: 1871

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/23/24 6:03 pm

Viewing: **IS&T 6448 : Building the Data Warehouse**

File: 1906.1

Last edit: 04/05/24 3:11 pm

Changes proposed by: cecq8z

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Business and Information Tech
Discipline	Info Science & Technology (IS&T)
Course Number	6448
Title	Building the Data Warehouse
Abbreviated Course Title	Build Data Warehouse

Catalog Description

Data modeling and processes needed to populate a data warehouse; tradeoffs among several models and tools; technical issues that are faced, such as security, schemas, Web access, other reporting techniques.

Prerequisites

IS&T 6444.

Field Trip Statement

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

Required for Majors	No
Elective for Majors	No

Justification for

In Workflow

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

Approval Path

1. 04/01/24 3:06 pm Cassie Elrod (cassa): Approved for RBUS&IT Chair
2. 04/05/24 3:11 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:25 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:49 pm Jennifer

change:
No one to teach course

Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments **esdk3 (04/05/24 3:11 pm):** updated effective date to fall 24 - es 4/5

Key: 1906

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/04/24 8:41 am

Viewing: **IS&T 6680 : Advanced Digital Media Development and Interactive Design**

File: 1614.10

Last approved: 09/28/20 6:00 am

Last edit: 04/04/24 8:41 am

Changes proposed by: jpnfd

Requested Effective Change Date	Fall 2024 ~~Spring 2021~~
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	6680
Title	Advanced Digital Media Development and Interactive Design
Abbreviated Course Title	Advanced Web Studies

Catalog Description

This course covers advanced techniques and tools for the design and development of digital and interactive media, including text, graphics, animation, audio, and video. This course is an advanced version of IST 4680, with additional assignments.

Prerequisites

Some knowledge of programming

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for	No			

In Workflow

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

Approval Path

1. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 04/05/24 3:12 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:25 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:49 pm

Majors

Justification for change:

Course no longer taught. Dept requested deactivation.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Apr 25, 2014 by lahne (1614.1)
2. Jun 30, 2014 by lahne (1614.4)
3. Sep 28, 2020 by cecq8z (1614.6)

Key: 1614

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/04/24 8:41 am

Viewing: **IS&T 6780 : Adv Human and Organizational Factors in Cybersecurity**

File: 4385.7

Last approved: 10/11/17 3:29 am

Last edit: 04/04/24 8:41 am

Changes proposed by: jpnfd

Requested Effective Change Date	Fall 2024 ~~08/14/2017~~
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	6780
Title	Adv Human and Organizational Factors in Cybersecurity
Abbreviated Course Title	Adv Fctrs Cybersecurity

Catalog Description

In-depth examination of human and organizational factors in cybersecurity and information assurance. Examines current challenges to protecting the integrity, availability, and confidentiality of information, as well as tools, methods, principles, and analytics for fraud prevention, insider threat detection, and forensic investigations. Project Required.

Prerequisites

None, but recommended: IS&T 3333 or IS&T 6336 or Comp Sci 3600 or another introductory cybersecurity or information assurance course.

Field Trip Statement

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

In Workflow

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

Approval Path

1. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 04/05/24 3:12 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:25 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:49 pm

Required for Majors	No
Elective for Majors	Yes

Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for change:

Course no longer taught. Dept requested deactivation.

History

1. Oct 11, 2017 by barryf

Semesters previously offered as an experimental course	None
Co-Listed Courses:	

Course Reviewer Comments

Key: 4385

Preview Bridge

Course Change Request

Date Submitted: 04/03/24 4:08 pm

Viewing: **MKT 5410 : Big Data Consumer Analytics**

File: 4731.9

Last approved: 04/03/24 7:45 am

Last edit: 04/05/24 4:20 pm

Changes proposed by: cecq8z

Programs referencing this course	MARKET-MI: Marketing Minor

Requested Effective Change Date	Spring 2025 ~~2021~~
Department	Business and Information Tech
Discipline	Marketing (MKT)
Course Number	5410
Title	Big Data Consumer Analytics
Abbreviated Course Title	Consumer Analytics

Catalog Description

In this course, we will discuss the challenges that companies face in extracting and utilizing insights from consumer Big Data to implement innovation in various marketing activities. Additionally, we will explore various approaches of analyzing consumer Big Data. The course will include lectures, case studies and simulation.

Prerequisites

Bus 6622 or both Mkt 3110 and one of the following: Stat ~~1111, Stat~~ 1115, Stat 1116, Stat 3111, Stat 3113, Stat 3115, or Stat 3117.

Field Trip Statement

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

In Workflow

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

Approval Path

1. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RBUS&IT Chair
2. 04/05/24 4:20 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 4:58 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander

Required for Majors	No
Elective for Majors	Yes

Justification for change:

STAT 1111 has been delisted.

Semesters previously offered as an experimental course	Spring 2019 and Spring 2017
Co-Listed Courses:	

Course Reviewer Comments	**esdk3 (04/05/24 4:20 pm):** updated effective date to Spring 25; affecting change -es 4/5

Key: 4731

Preview Bridge

(jpnfd): Approved for Pending CCC Agenda post

History

1. Feb 1, 2021 by Cecil Eng Huang Chua (cchua)
2. Apr 3, 2024 by esdk3 (4731.7)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/04/24 8:42 am

Viewing: **MKT 6580 : Advanced Marketing Strategy**

File: 1229.10

Last approved: 06/29/15 3:51 am

Last edit: 04/04/24 8:42 am

Changes proposed by: jpnfd

Programs referencing this course	E&S COM-CT: Electronic & Social Commerce CT

Requested Effective Change Date	Fall 2024 ~~01/12/2016~~
Department	Business Administration
Discipline	Marketing (MKT)
Course Number	6580
Title	Advanced Marketing Strategy
Abbreviated Course Title	Advanced Marketing Strategy

Catalog Description

Identification and analysis of strategic managerial marketing issues. Integration of marketing concepts through theoretical overview and practical analysis, including extensive use of simulation. Independent work on marketing project.

Prerequisites

MKT 3110 or MKT 6622 or ENG MGT 3510.

Field Trip Statement

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

In Workflow

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

Approval Path

1. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 04/05/24 4:08 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 4:17 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

Required for Majors	No
Elective for Majors	Yes

Justification for change:

Course no longer taught. Dept requested deactivation.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 3, 2014 by lahne (1229.1)
2. Jul 3, 2014 by lahne (1229.6)
3. Jun 29, 2015 by barryf (1229.8)

Key: 1229

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 04/03/24 3:28 pm

Viewing: **PHYSICS 5409 : Computational Physics Laboratory**

File: 5071

Last edit: 04/05/24 3:54 pm

Changes proposed by: vojtat

Requested Effective Change Date	Fall 2024
Department	Physics
Discipline	Physics (PHYSICS)
Course Number	5409
Title	Computational Physics Laboratory
Abbreviated Course Title	Comp Phys Lab

Catalog Description

Computational project-based studies in the areas of fundamental, applied, and data-driven physics and astronomy with connections to chemistry and materials science. Topics include atomistic and ab-initio computer simulations for quantum materials, semiconductors, extreme-environment ceramics, alloys, etc. The course covers algorithms, interpolations, experimental or theoretical data processing, analysis and visualization as well as an introduction to Linux, bash-scripting and parallel computing at an HPC cluster.

Prerequisites

Physics 2305

Field Trip Statement

N/A

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

Required for Majors	No
Elective for	Yes

In Workflow

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

Approval Path

1. 04/03/24 3:30 pm Thomas Vojta (vojtat): Approved for RPHYSICS Chair
2. 04/05/24 3:54 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/11/24 4:02 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 04/18/24 3:49 pm Jennifer

Majors

Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for new course:

Computational techniques play an increasingly important role in all sciences including physics. This course is aimed at beginning graduate students and upper-level undergraduates. It provides much need hands-on experience with computational approaches, data analysis and visualization, and modern software tools used in physics research.

The course has been offered successfully as an experimental course three times, in spring 2020 and 2021 at the 3000 level, and in spring 2024 at the 5000 level. The course is planned to become part of the new semiconductor degree program which is why a permanent course number is needed now.

Semesters previously offered as an experimental course	Spring 2020 Spring 2021 Spring 2024
Co-Listed Courses:	
Course Reviewer Comments	**esdk3 (04/05/24 3:54 pm):** Spring 2020 -- 10 enrolled (as Physics 3001) Spring 2021 -- 6 enrolled (as Physics 3001) Spring 2024 -- 11 enrolled (as Physics 5001)

Key: 5071

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/28/24 9:29 am

Viewing: **PSYCH 4603 : Social Influence: Science and Practice**

File: 1718.1

Last edit: 03/29/24 11:40 am

Changes proposed by: reynoldscla

Other Courses referencing this course	In The Prerequisites: PSYCH 5603 : Advanced Social Influence

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Psychological Science
Discipline	Psychology (PSYCH)
Course Number	4603
Title	Social Influence: Science and Practice
Abbreviated Course Title	Social Influence

Catalog Description

Principles and procedures that affect the process of social influence, with consideration given to attitudinal, compliance inducing, and perceptual influences.

Prerequisites

Psych 1101

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			

In Workflow

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

Approval Path

1. 03/28/24 9:29 am Clair Kueny (reynoldscla): Approved for RPSYCHOL Chair
2. 03/29/24 11:40 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/29/24 11:48 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences

Elective for Majors	No

DSCC Chair

4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for change:

This course has not been offered in over 5 years with no plans to offer it in the next 5 years

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 1718

Preview Bridge

Course Change Request

Date Submitted: 03/28/24 9:31 am

Viewing: PSYCH 5603 : Advanced Social Influence

File: 2398.1

Last edit: 03/29/24 11:40 am

Changes proposed by: reynoldscla

Requested Effective Change Date	Fall 2024 ~~07/01/2024~~
Department	Psychological Science
Discipline	Psychology (PSYCH)
Course Number	5603
Title	Advanced Social Influence
Abbreviated Course Title	Advanced Social Influence

Catalog Description

An in-depth review of the principles and procedures that affect the process of social influence, with consideration given to attitudinal, compliance inducing, and perceptual influences. Students will consider the theoretical implications and practical applications of topics in social influence in the form of independent reading, research proposals and/or projects, and observational assignments.

Prerequisites

Graduate standing. ~~Psych 4603 or graduate standing.~~

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	No			

Justification for

In Workflow

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

Approval Path

1. 03/28/24 9:31 am Clair Kueny (reynoldscla): Approved for RPSYCHOL Chair
2. 03/29/24 11:40 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/29/24 11:48 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

change:

We are deactivating Psych 4603 due to inability to offer the course so removed it as a pre-req for this course. Graduate standing remains as the pre-req

4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments **jpnfd (03/29/24 11:40 am):** Updated term to Fall 2024.

Key: 2398

Preview Bridge

Program Change Request

Date Submitted: 04/03/24 4:12 pm

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

File: 253.20

Last approved: 06/10/21 4:00 pm

Last edit: 04/05/24 4:22 pm

Changes proposed by: cecq8z

Catalog Pages Using this Program
Business and Management Systems
Information Science and Technology

Start Term
Fall 2024 ~~2021~~
Program Code
AI-MI
Department
Business and Information Technology
Title
Minor in Artificial Intelligence and Machine Learning in Business

Program Requirements and Description

In Workflow

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

Approval Path

1. 04/03/24 2:21 pm Cassie Elrod (cassa): Rollback to Initiator
2. 04/04/24 1:56 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
3. 04/09/24 1:03 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
4. 04/09/24 1:14 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
5. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Dec 11, 2017 by barryf
2. Mar 12, 2018 by ershenb
3. Apr 18, 2018 by ershenb
4. Apr 19, 2018 by ershenb
5. Apr 19, 2018 by ershenb
6. Feb 3, 2021 by Cecil Eng Huang Chua (cchua)

7. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)

Minor in Artificial Intelligence and Machine Learning in Business

The Minor requires 15 credit hours, as follows:

BUS 5730	Machine Learning and Artificial Intelligence for Business	3
IS&T 3420	Introduction to Data Science and Management	3
IS&T 5520	Data Science and Machine Learning with Python	3
And two courses from the following list:		6
~~STAT 3111~~	~~Statistical Tools For Decision Making~~	
STAT 1115	Statistics For The Social Sciences I	
or STAT 3111	Statistical Tools For Decision Making	
IS&T 3333	Data Networks and Information Security	
IS&T 3343	Systems Analysis	
IS&T 5420	Business Analytics and Data Science	
IS&T 5450	Introduction to Information Visualization	
IS&T 5535	Machine Learning Algorithms and Applications	
ERP 5410	Use of Business Intelligence	

Justification for request

Rejuggling to remove dead courses.

Supporting Documents

Course Reviewer Comments

cassa (04/03/24 2:21 pm): Rollback: I apologize....I missed moving IST 5535 down to electives like we did on the graduate certificate. Can you move it to electives and send back? So sorry!

esdk3 (04/05/24 4:22 pm): updated effective date to FS24 - es 4/5

Key: 253

Program Change Request

A deleted record cannot be edited

Program Deactivation Proposal

Date Submitted: 03/28/24 10:06 am

Viewing: AM STU-MI : American Studies Minor

File: 176.4

Last approved: 05/18/23 3:38 pm

Last edit: 03/28/24 10:57 am

Changes proposed by: kswenson

Catalog Pages Using this Program
English and Technical Communication

Start Term
Fall 2024 ~~08/17/2015~~
Program Code
AM STU-MI
Department
English and Technical Communication
Title
American Studies Minor

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/28/24 10:09 am Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 03/28/24 10:57 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/28/24 2:45 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 7, 2014 by Lahne Black (lahne)
2. Jul 20, 2015 by pantaleoa
3. May 18, 2023 by Jennifer Pohlsander (jpnfd)

American Studies

The minor requires 15 hours, including ENGLISH 1223 Course ENGLISH 1223 Not Found and ENGLISH 3228 Course ENGLISH 3228 Not Found. In addition, the student, in consultation with the minor advisor, will select three courses, one of which must be at the 300 level, from the areas of American art, history, literature, music, or

philosophy.

Justification for request

Required courses for this minor have not been offered in many years. Both courses are being deactivated.

Supporting Documents

Course Reviewer Comments

jpnfd (03/28/24 10:57 am): Updated term to Fall 2024.

Key: 176

Program Change Request

Date Submitted: 03/22/24 10:53 am

Viewing: AP MATH-BS : Applied Mathematics BS

File: 142.61

Last approved: 06/14/22 4:24 pm

Last edit: 04/05/24 1:51 pm

Changes proposed by: prunnion

Catalog Pages Using this Program
Mathematics

Start Term
Fall 2024 ~~2022~~
Program Code
AP MATH-BS
Department
Mathematics & Statistics
Title
Applied Mathematics BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 04/07/23 11:04 am Xiaoming Wang (xwx4z): Approved for RMATHEMA Chair
2. 07/28/23 8:00 am Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 03/22/24 11:30 am Xiaoming Wang (xwx4z): Approved for RMATHEMA Chair
4. 04/05/24 1:52 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
5. 04/09/24 2:54 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
6. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Apr 28, 2014 by imorgan
2. Apr 28, 2014 by Lahne Black (lahne)
3. Jun 13, 2014 by pantaleoa
4. Jun 13, 2014 by pantaleoa

5. Jul 21, 2015 by pantaleoa
6. Jul 21, 2015 by pantaleoa
7. Apr 25, 2016 by imorgan
8. Aug 12, 2016 by cladmin-bdietzler
9. Jun 14, 2019 by Paul Runnion (prunnion)
10. Jul 1, 2020 by Paul Runnion (prunnion)
11. Feb 3, 2021 by Paul Runnion (prunnion)
12. Mar 9, 2021 by Marita Raper (tibbettsmg)
13. Mar 9, 2021 by Marita Raper (tibbettsmg)
14. May 5, 2021 by Paul Runnion (prunnion)
15. Jun 14, 2022 by Paul Runnion (prunnion)

Bachelor of Science

Applied Mathematics

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

The applied mathematics curriculum requires fifteen semester hours of technical electives, except where this requirement is reduced to compensate for extra requirements of emphasis areas, in addition to basic required courses in the sciences ~~chemistry or biology, physics, computer science,~~ and economics. ~~Two semesters of language and communication, ENGLISH 1160 or ENGLISH 3560, and either HISTORY 1300, HISTORY 1310, HISTORY 1200, or POL SCI 1200 are alsorequired.~~ Specific requirements for the bachelor's degree are outlined in the sample program below.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MATH 1101[1]	1	MATH 1215 or 1221[1]	4
MATH 1214 or 1211[1]	4	Science Requirement[5]	5
OR		COMP SCI 1500	3
MATH 1208		ENGLISH 1160 or 1600[8]	3
~~CHEM 1100[1]~~	~~1~~	Basic ROTC (if elected)[4]	0
ENGLISH 1120	3		
ECON 1100 or 1200	3		
Campus History Requirement[2]	3		
Basic ROTC (if elected)[4]	0		
	14		15
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**

MATH 2222[1]	4	MATH 3304[1]	3
MATH 3108[1]	3	MATH 3109[1]	3
COMP SCI 1570	3	Statistics Requirement[1,6,7]	3
COMP SCI 1580	1	~~PHYSICS 2135~~	~~4~~
PHYSICS 1135	4	Science Requirement[5]	4
Basic ROTC (if elected)[4]	0	Literature	3
		Basic ROTC (if elected)[4]	0
	15		16

Junior Year

First Semester	Credits	Second Semester	Credits
MATH 4209[1]	3	MATH 4211[1, 12]	3
SP&M S 1185 or 3245[14]	3	Humanities/Social Science Elective[3]	3
Electives-Math or Stat[1,7,9]	3	~~Electives-Math or Stat[1,7,9]~~	~~3~~
Electives-Technical[10]	3	Electives - Statistics[1,7,15]	3
Electives[13]	3	Electives-Technical[10]	3
		Electives[13]	3
	15		15

Senior Year

First Semester	Credits	Second Semester	Credits
Capstone Course[1,7,11]	3	Electives-Math or Stat[1,7,9]	3
Electives-Math or Stat[1,7,9]	3	Electives-Technical[10]	3
Electives-Technical[10]	6	Electives[13]	9
Humanities/Social Science Elective[3]	3		
	15		15
Total Credits: 120			

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

2 May be met by HISTORY 1200, HISTORY 1300, HISTORY 1310, or POL SCI 1200.

3 The two humanities/social science electives (at least 3 credits each) are to be selected from lecture courses in ART, ENGLISH, ETYM, FRENCH, GERMAN, HISTORY, MUSIC, PHILOS, POL SCI, PSYCH, RUSSIAN, SPANISH, SP&M S, and THEATRE.

4 Basic ROTC may be elected in the freshman and sophomore years, but is not creditable toward a degree. Up to six credit hours of advanced ROTC may be credited as free electives towards a degree.

5 Choose two of the following:
(BIO SCI 1113 or BIO SCI 1213) plus BIO SCI 1219; or
BIO SCI 2223; or
CHEM 1100 plus CHEM 1310 plus CHEM 1319 ; or
CHEM 1320; or
PHYSICS 2135

6 May be met by STAT 3113, STAT 3115, or STAT 3117.

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

8 May also be satisfied by ENGLISH 3560.

9 Select any three 4000 or 5000 level math or stat lecture courses. Research (MATH 4099, MATH 5099, STAT 4099, STAT 5099) and seminars (MATH 4010, MATH 5010) do not fulfill this requirement. Special topics and special problems courses are acceptable.

10

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

11

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

12

Math 4211 is not required for students earning the Data Science and Statistics emphasis area.

13

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

14

May also be satisfied by one of the two complete four-course sequences in Advanced ROTC.

15

Any statistics lecture course at the 4000 or 5000 level. Special topics and special problems courses are acceptable.

Emphasis Areas at the Bachelor of Science Level

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

Actuarial Science Emphasis Area

Required courses:

STAT 5643	Probability And Statistics	3
STAT 5644	Mathematical Statistics	3
ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3
ECON 2200	Intermediate Macroeconomic Theory	3
MATH 5737	Financial Mathematics	3
And six hours from:		6
STAT 5814	Applied Time Series Analysis	3
STAT 5346	Regression Analysis	3
STAT 5353	Statistical Data Analysis	3
STAT 5755	Statistical Models in Actuarial Science	3
STAT 5756	Statistical Models for Life Contingencies	3

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

~~MATH 5105~~	~~Modern Algebra I~~	~~3~~
~~MATH 5106~~	~~Modern Algebra II~~	~~3~~
~~or MATH 6105~~	~~Finite Fields And Applications~~	
~~MATH 5107~~	~~Combinatorics And Graph Theory (Satisfies Capstone requirement)~~	~~3~~
~~MATH 5108~~	~~Linear Algebra II~~	~~3~~
~~STAT 5643~~	~~Probability And Statistics~~	~~3~~
~~Select one of the following:~~		~~3~~
~~STAT 5644~~	~~Mathematical Statistics~~	~~3~~
~~COMP SCI 2200~~	~~Theory of Computer Science~~	~~3~~
~~COMP SCI 3200~~	~~Introduction To Numerical Methods~~	~~3~~
~~COMP SCI 5200~~	~~Analysis Of Algorithms~~	~~3~~

~~Algebra/Discrete Mathematics Emphasis Area Requiredcourses:~~Computational Mathematics Emphasis Area

Required courses:

~~STAT 5353~~	~~Statistical Data Analysis (Satisfies Capstone requirement)~~	~~3~~
COMP SCI 1575	Data Structures	3
~~COMP SCI 3200~~	~~Introduction To Numerical Methods~~	~~3~~
COMP SCI 1585	Data Structures Laboratory	1
MATH 5601	Introduction to Numerical Analysis	3
STAT 5346	Regression Analysis [2]	3
Select three of the following: [1]		
MATH 5302	Intermediate Differential Equations	3
MATH 5325	Partial Differential Equations	3
MATH 5602	Mathematical Foundation of Finite Element Methods	3
MATH 5603	Methods of Applied Mathematics	3
MATH 5604	Introduction to Numerical Methods for Differential Equations	3
MATH 5680	Mathematics of Machine Learning	3
Select one of the following:		
~~COMP SCI 5201~~	~~Object Oriented Numerical Modeling I~~	~~3~~
~~COMP SCI 5402~~	~~Introduction to Data Mining~~	~~3~~
~~MECH ENG 5139~~	~~Computational Fluid Dynamics~~	~~3~~
~~AERO ENG 5139~~	~~Computational Fluid Dynamics~~	~~3~~
~~MECH ENG 5212~~	~~Introduction to Finite Element Analysis~~	~~3~~
~~AERO ENG 5212~~	~~Introduction to Finite Element Analysis~~	~~3~~
~~MECH ENG 5830~~	~~Applied Computational Methods~~	~~3~~
~~AERO ENG 5830~~	~~Applied Computational Methods~~	~~3~~
Statistics elective [3]		3

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

2 This fulfills the capstone requirement.

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

~~Applied Analysis Emphasis AreaRequired: Engineering Option Requiredcourses: Physics Option Requiredcourses: Note that the requirements for a minor in physics will be satisfied with thisoption.~~Secondary Education Emphasis Area

~~PHYSICS 2305~~	~~Introduction To Modern Physics~~	~~3~~
~~And take at least twelve additional hours of physics courses at the 2000 level or above.~~		~~12~~

~~* Courses with an asterisk (*) are co-listed in more than one department.~~

~~CIV ENG 2200~~	~~Statics~~	~~3~~
~~CIV ENG 2210~~	~~Mechanics Of Materials~~	~~3~~
~~Select one of the following:~~		
~~MECH ENG 2350~~	~~Engineering Mechanics-Dynamics~~	
~~MECH ENG 2360~~	~~Dynamics~~	~~3~~
~~Select three of the following:~~		~~9~~

Courses, which have any of the listed courses as prerequisites, may also be used to fulfill this requirement.		
AERO ENG 3613	Aerospace Mechanics I	3
AERO ENG 5313	Intermediate Dynamics of Mechanical and Aerospace Systems	3
AERO ENG 5614	Spaceflight Mechanics	3
CHEM ENG 2100	Chemical Engineering Material & Energy Balances	4
CHEM ENG 2110	Chemical Engineering Thermodynamics I	3
ELEC ENG 2800	Electrical Circuits	3
MECH ENG 3313	Machine Dynamics	3
MECH ENG 2519	Thermodynamics	3
or MECH ENG 2527	Thermal Analysis	
MECH ENG 5131	Intermediate Thermofluid Mechanics *	3
NUC ENG 3103	Interactions Of Radiation With Matter	3
NUC ENG 4203	Reactor Physics I	3
PET ENG 4621	Fundamentals Of Petroleum Reservoir Simulation	3
CIV ENG 3330	Engineering Fluid Mechanics	3
or NUC ENG 3221	Reactor Fluid Mechanics	
or MECH ENG 3131	Thermofluid Mechanics I	
CIV ENG 5207	Computer Methods of Structural Analysis	3
CIV ENG 5333	Intermediate Hydraulic Engineering	3
MECH ENG 5307	Vibrations I	3
MECH ENG 5211	Introduction To Continuum Mechanics	3
MECH ENG 5234	Stability of Engineering Structures *	3
MECH ENG 5254	Course MECH ENG 5254 Not Found	3
GEO ENG 4115	Statistical Methods in Geology and Engineering	3
GEOPHYS 3221	Potential Field Theory	3

COMP SCI 3200	Introduction To Numerical Methods	3
and two of groups 3, 4, and 5 under Mathematics and Statistics electives (plus the Capstone requirement) must be satisfied,		
and choose Technical Electives and Free Electives to satisfy one of the following two options:		

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

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

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

A degree in this emphasis area requires 120 credit hours. The required courses and a sample four-year program are provided below. (A minimum grade of "C" is required by the department in all mathematics and statistics courses counted toward this degree. No course may be used to satisfy more than one degree requirement, except as otherwise noted.)

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MATH 1101	1	MATH 1215 or 1221	4
MATH 1214 or 1211	4	EDUC 1164	2
OR		EDUC 1174	2
MATH 1208		PHYSICS 1135	4
ENGLISH 1120	3	PSYCH 1101	3

HISTORY 1300 or 1310	3		
EDUC 1040	2		
EDUC 1104	1		
	14		15

Sophomore Year

First Semester	Credits	Second Semester	Credits
MATH 2222	4	MATH 3304	3
MATH 3108	3	MATH 3109	3
COMP SCI 1500	3	ENGLISH 1160	3
PHYSICS 2135	4	PSYCH 3310	3
SP&M S 1185	3	STAT 3113, or 3115, or 3117	3
	17		15

Junior Year

First Semester	Credits	Second Semester	Credits
MATH 4209	3	MATH 4211	3
ECON 1100 or 1200	3	MATH 4530	3
ENGLISH 3170	3	EDUC 3280	3
EDUC 3216	3	EDUC 3340	3
EDUC 3298	1	PSYCH 2300 or EDUC 2102	3
POL SCI 1200	3		
	16		15

Senior Year

First Semester	Credits	Second Semester	Credits
Electives-Math or Stat[1]	6	EDUC 4298 & EDUC 4299[3]	13
PSYCH 4310 or EDUC 2310	3		
Electives[2]	6		
	15		13
Total Credits: 120			

1 Any two three-hour courses from the following list with the approval of the mathematics education advisor. MATH 5105, MATH 5106, MATH 5107, MATH 5108, MATH 5215, MATH 5222, MATH 5302, MATH 5325, MATH 5351, MATH 5483, MATH 5512, MATH 5585, MATH 5601, MATH 5602, MATH 5603, MATH 5604, MATH 5680, MATH 5737, MATH 5762, STAT 4210, STAT 5260, STAT 5290, STAT 5346, STAT 5353, STAT 5643, STAT 5644, STAT 5755, STAT 5756, STAT 5814

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

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

Data Science and Statistics Emphasis Area

Required courses:

STAT 4210	Introduction to Statistical Data Science	3
STAT 5643	Probability And Statistics	3
STAT 5644	Mathematical Statistics	3
STAT 5346	Regression Analysis [2]	3
STAT 5353	Statistical Data Analysis (Satisfies Capstone requirement) [1]	3
Select one of the following:		6
STAT 5260	Statistical Data Analysis Using SAS	3

STAT 5290	Computational Bayesian Methods using Python	3
STAT 5814	Applied Time Series Analysis	3
or another approved computational statistics course		
Complete the following CS courses (in addition to those required for all Applied Mathematics majors):		
COMP SCI 1200	Discrete Mathematics for Computer Science [2]	3
COMP SCI 1575	Data Structures [2]	3
COMP SCI 1585	Data Structures Laboratory [2]	1
COMP SCI 2300	File Structures and Introduction to Database Systems [2]	3
COMP SCI 2500	Algorithms [2]	3
and one of the following two courses:		
COMP SCI 5400	Introduction To Artificial Intelligence [2]	3
COMP SCI 5402	Introduction to Data Mining [2]	3

1 Satisfies Capstone requirement.

2 Satisfies the requirements for a minor in Computer Science (when combined with COMP SCI 1500, COMP SCI 1570, and COMP SCI 1580 which are required for all Applied Mathematics majors).

Justification for request

We are requesting the deletion of our algebra/discrete and applied analysis emphasis areas due to lack of student interest. State approval for this deletion is attached.

In the preamble, we are changing the wording of the "C" or better requirement to make it clearer. It does not change the practice as implemented in the degree audits. We have also edited footnote 1 under the general degree to align the wording. We have also deleted references to specific courses within the preamble because the requirements are very clear in the detailed information below.

The computational mathematics emphasis is being updated to reflect new courses that have been developed since the emphasis was created and to remove courses which are no longer offered on a regular basis. This should make it much easier for a student to earn this emphasis area, which represents a strength of our department's course offerings.

The science requirement is being changed for the general degree to add flexibility while still requiring three semesters of science coursework. As more research (both on campus and elsewhere) is focused on biostatistics and biomathematics, we want to list both BIO SCI 1113 and BIO SCI 1213 as options to support potential double majors. We know that BIO SCI 1213 is reserved for biology majors only, but this is designed to eliminate the need for a sub/waiver form in the future. We are intentionally not making any corresponding changes to the secondary education emphasis at this time, but may change that in the future. (We believe it is more likely for a secondary math teacher to be asked to fill in for physics than for biology or chemistry, so at this time we want them to still take two semesters of physics.)

The technical electives are being updated to add more flexibility in response to student requests. In particular, we have had some students change from the secondary education emphasis to the general degree very late in their time at S&T, and adding education to the acceptable list of technical electives reduces the need for sub/waiver forms.

We are proposing substantial changes to our math/stat electives. We feel all of our students should have to take at least two statistics courses, while our existing requirements only force students to take one introductory course. (We will not be changing this for the secondary ed students at this time because of how full that program is - we may revisit this later.) We also want to eliminate some common substitution/waiver situations when students take special topics courses - these will now explicitly count toward the degree. Furthermore, it has become increasingly hard for students to fulfill the existing 5 "groups" due to staffing challenges within the department. This will make it much easier for students to complete the degree.

Finally, the capstone changes are designed to require students to take a heavily applied and/or project-based course. We removed the most theoretical course from the existing list (MATH 5215) and added quite a few additional courses as options; again, this reduces the need for substitution/waiver forms and increases flexibility for students.

Supporting Documents

~~MS&T PC July 2021.pdf~~

~~Program Change (PC) Form BS Applied Math.pdf~~

MDHE Approval Letter_S&T_FEB 2024.pdf

Course Reviewer Comments

jpnfd (04/13/23 11:48 am): Footnote formatting update

jpnfd (04/13/23 11:49 am): Footnote update

jpnfd (07/28/23 7:06 am): Updated term to Fall 2024.

jpnfd (07/28/23 8:00 am): Rollback: Please attach an approved program change form, noting emphasis area changes. Please see email 7/28/2023.

jpnfd (04/05/24 1:50 pm): Per email from Dr. Raper 4/4/24- changes do not need System or MDHE approval.

jpnfd (04/05/24 1:51 pm): Regarding previous comment- Computational Mathematics Emphasis Area does not need additional approval from System or MDHE

Key: 142

Program Change Request

Date Submitted: 04/01/24 2:57 pm

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

File: 148.54

Last approved: 06/10/21 4:06 pm

Last edit: 04/12/24 10:15 am

Changes proposed by: cassa

Catalog Pages Using this Program
Business and Management Systems

Start Term
Fall 2024 ~~2021~~
Program Code
BUS&MS-BS
Department
Business and Information Technology
Title
Business and Mgmt Systems BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/18/24 10:16 am Cassie Elrod (cassa): Rollback to Initiator
2. 03/18/24 6:52 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
3. 04/01/24 2:29 pm Jennifer Pohlsander (jpnfd): Rollback to Initiator
4. 04/01/24 3:03 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
5. 04/12/24 10:16 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
6. 04/12/24 10:44 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
7. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Aug 5, 2014 by barryf
2. Jan 30, 2015 by barryf

3. Jun 17, 2015 by pantaleoa
4. Jul 14, 2015 by pantaleoa
5. Mar 7, 2016 by barryf
6. Nov 2, 2018 by barryf
7. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)

Bachelor of Science
Business and Management Systems

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

A common departmental core of courses in Business ~~Management~~ and Information Technology helps provide students with skills to succeed in a fast-changing and globalized environment. Business ~~Business~~ Core courses with Business and Information Technology ~~Business~~ Electives provide students with ~~with~~ comprehensive knowledge in technological business disciplines.

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

~~Business Core, Business Electives, Management, and Information Technology courses. Students have 9 credit hours for free electives.~~
Students have 9 credit hours for free electives.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
BUS 1110	3	IS&T 1750	3
BUS 1810	1	~~3 credit hours of Mathematical Science or Science[4]~~	~~3~~
PSYCH 1101	3	~~ENGLISH 1600 or TCH COM 1600~~	~~3~~
ENGLISH 1120	3	~~ECON 1200~~	~~3~~
~~4 credit hours of Mathematical Science or Science[4]~~	~~4~~	ENGLISH 2560 (or TECHCOM 2560)	3
Mathematical Science or Science Elective[1]	4	MATH 1212	4
		POL SCI 1200	3
		Science Elective[2]	3
	14		16
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
BUS 1210	3	ERP 2110	3
~~MATH 1212~~	~~4~~	~~POL SCI 1200~~	~~3~~
IS&T 1551	3	~~History Elective~~	~~3~~
~~ECON 1100~~	~~3~~	FINANCE 2150	3
ECON 1200	3	IS&T 1552	3
SP&M S 1185	3	IS&T 4654	3
Mathematical Science or Science Elective[1]	3	ECON 1100	3
	15		15
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**

BUS 3220	3	BUS 2910	3
MKT 3110	3	BUS 5580	3
~~IS&T 4654~~	~~3~~	~~ENGLISH 2560 or TCH COM 2560~~	~~3~~
STAT 3111 or 1115	3	~~BUS 3220~~	~~3~~
~~Business Elective~~	~~3~~	~~Business Electives~~	~~6~~
~~Free Elective~~	~~3~~	BUS 5730	3
Business Electives	6	Business Elective	3
		Free Elective	3
	15		15

Senior Year

First Semester	Credits	Second Semester	Credits
~~BUS 2910~~	~~3~~	BUS 5360	3
~~BUS 5360~~	~~3~~	BUS 5980	3
BUS 5111	3	~~BUS 5111~~	~~3~~
FINANCE 5310	3	Business Elective	3
MKT 5310 or BUS 5150	3	Fine Art, Social Science, or Humanities Elective[3]	3
Business Elective	3	Free Elective	3
Free Elective	3		
	15		15
Total Credits: 120			

A grade of "C" or better is required in the following courses for graduation: IS&T 1551, IS&T 1552, IS&T 1750, IS&T 4654, ~~IS&T 1551, IS&T 1552,IS&T 1750, IS&T 4654,~~ ERP 2110, FINANCE 2150, FINANCE 5310, MKT 3110, MKT 5310 or BUS 5150, ECON 1100, ECON 1200, ~~FIN 2150, MKT 3110, MKT 5310, ECON 1100, ECON 1200,~~ BUS 1110, BUS 1210, BUS 2910 , BUS 3220, BUS 5111, ~~FIN 2150 , BUS 2910 , BUS 3220, BUS 5111, ,~~ BUS 5360, BUS 5580, BUS 5730, BUS 5980, ~~BUS 5980,~~ and all Business Electives (can include any BUS, ERP, FINANCE, MKT or IST designated course at the 3000-level or above). ~~Electives.~~ ~~Human-Computer Interaction~~ ~~Management~~ ~~Marketing~~

~~MKT 3210~~	~~Consumer Behavior~~	~~3~~
~~MKT 4580~~	~~Marketing Strategy~~	~~3~~
~~ERP 4610~~	~~Customer Relationship Management in ERP Environment~~	~~3~~
~~MKT 5150~~	~~Customer Focus and Satisfaction~~	~~3~~
~~MKT 5320~~	~~Marketing for Non-Profits~~	~~3~~

~~BUS 5470~~	~~Human Resource Management~~	~~3~~
~~BUS 5111~~	~~Business Negotiations~~	~~3~~
~~IS&T 5251~~	~~Management and Leadership of Technological Innovation~~	~~3~~

~~IS&T 5652~~	~~Advanced Web Development~~	~~3~~
~~IS&T 5885~~	~~Human-Computer Interaction and User Experience~~	~~3~~
~~IS&T 5886~~	~~Prototyping Human-Computer Interactions~~	~~3~~
~~IS&T 5887~~	~~Human-Computer Interaction Evaluation~~	~~3~~

1 Mathematical Science is any MATH, STAT, COMPSCI or IST course not otherwise covered in the degree program.

For definition of science, refer to footnote 2.

2 Any course in the following areas: Biology, Chemistry, Geology, Geological Engineering, Physics.

3 Any course in the following areas not used for other degree requirements: Art, economics, English, foreign language, history, literature, music, philosophy, political science, psychology, sociology, theater.

Mathematical Science is any MATH, STAT, COMPSCI or IST course not otherwise covered in the degree program

4 For definition of science, refer to footnote 3.

Areas of Concentration All students are required to complete twelve credit hours chosen from 2000, 3000, 4000, or 5000-level courses in business, economics, finance, enterprise resource planning, information science & technology, ormarketing.A "C" or better grade is required in all twelve credithours.If the student chooses to designate an area of concentration for these courses, focusing at least 3 courses (9 credits) in one area, he or she may doso.Students are not required to choose a concentrationarea.Areas of concentrationare:E-Commerce Enterprise Resource Planning Finance ECON 4410, and ECON 5337 cannot be used toward thisconcentration. **Bachelor of Science**

FINANCE 5160	Corporate Finance II	3
FINANCE 5260	Investments I	3
ECON 4720	International Finance	3
FINANCE 5310	Financial Technology and Analytics	3
BUS 5230	Financial Statement Analysis	3

Any 9 hours of ERP-designated courses at the 4000-level or above.

IS&T 5652	Advanced Web Development	3
IS&T 4641	Digital Commerce and IoT Analytics	3
IS&T 4642	Course IS&T 4642 Not Found	3
IS&T 4257	Course IS&T 4257 Not Found	3
IS&T 5168	Course IS&T 5168 Not Found	3

Business and Management Systems

Military Science and Leadership ~~Secondary Education~~ Emphasis Area

Degree Requirements

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

Students interested in this emphasis area should consult with an advisor for business and management systems degree program in the business and information technology department.

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

A degree in this emphasis area requires 123 credit hours. A minimum grade of "C" is required by the department in all courses designated BUS, MKT, FINANCE, IS&T, ECON, or ERP that are counted toward this degree and/or emphasis area.

The courses listed below are required for the military science and leadership emphasis. These courses are in lieu of 15 credit hours of "business electives" and 9 credit hours of "free electives" in the traditional business and management systems bachelor of science curriculum. An additional 3 credit hours of courses will be required for a total of 27 credit hours in Military Science.

MIL ARMY 2500 Foundations of Tactical Leadership

MIL ARMY 3250 Adaptive Tactical Leadership

MIL ARMY 3500 Leadership in Changing Environments

MIL ARMY 4250 Developing Adaptive Leaders

MIL ARMY 4500 Leadership in a Complex World

Secondary Education Emphasis Area

Degree Requirements

You may earn a B.S. degree in business and management systems from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with this emphasis area. This program can be completed in four academic years and field experiences are arranged with public schools anywhere in the state.

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

In order to successfully complete this emphasis area, students must maintain a cumulative GPA of at least 2.75, and attain at least a 3.0 GPA average for all business content and professional education courses required by the Missouri Department of Elementary and Secondary Education for teacher certification. Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet 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 136 credit hours. The required courses are listed below. A minimum grade of "C" is required by the department in all courses designated BUS, MKT, FINANCE, IS&T, ECON, or ERP that are counted toward this degree.

General Education

PSYCH 1101	General Psychology	3
PSYCH 2300	Educational Psychology	3
PSYCH 3310	Developmental Psychology	3
Science Elective [1]		3
Mathematical Science or Science [2]		7
Fine Art, Social Science or Humanities Elective [3]		3
~~History Elective~~		~~3~~
ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3
POL SCI 1200	American Government	3
MATH 1212	Survey of Calculus	4
STAT 3111	Statistical Tools For Decision Making	3
or STAT 1115	Statistics For The Social Sciences I	
ENGLISH 1120	Exposition And Argumentation	3
~~ENGLISH 1600~~	~~Introduction to Technical Communication~~	~~3~~
IS&T 4654	Introduction to Web Design and Digital Media Studies	3

1 Any course in the following areas: Biology, Chemistry, Geology, Geological Engineering, Physics

2 Mathematical Science is any MATH, STAT, COMPSCI or IST course not otherwise covered in the degree program

For definition of science, refer to footnote 1.

3 Any course in the following areas not used for other degree requirements: Art, Economics, English, Foreign Language, History, Literature, Music, Philosophy, Political Science, Psychology, Sociology, Theater

Common Core Courses and Management

BUS 1110	Introduction to Management and Entrepreneurship	3
BUS 1210	Financial Accounting	3
BUS 2910	Business Law	3
BUS 3220	Managerial Accounting	3
BUS 5111	Business Negotiations	3
BUS 5360	Business Operations	3
BUS 5580	Strategic Management	3
BUS 5730	Machine Learning and Artificial Intelligence for Business	3

BUS 5980	Business Models for Entrepreneurship and Innovation	3
ERP 2110	Introduction to Enterprise Resource Planning	3
FINANCE 2150	Corporate Finance I	3
FINANCE 5310	Financial Technology and Analytics	3
IS&T 1551	Implementing Information Systems: User Perspective	3
IS&T 1552	Implementing Information Systems: Data Perspective	3
IS&T 1750	Introduction to Management Information Systems	3
MKT 3110	Marketing	3
MKT 5310	Digital Marketing and Promotions	3
~~BUS 3115~~	~~Course BUS 3115 Not Found~~	~~3~~

Education

EDUC 1040	Perspectives In Education	2
EDUC 1174	School Organization and Administration For Teachers	2
EDUC 2310	Education Of The Exceptional Child	3
EDUC 3216	Instructional Literacy in the Content Area	3
ENGLISH 3170	Teaching And Supervising Reading and Writing	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3290	Coordination of Cooperative Education	3
EDUC 3298	Teacher Field Experience III	1
EDUC 3340	Assessment of Student Learning	3
EDUC 4298	Student Teaching Seminar	1
EDUC 1104	Teacher Field Experience I	1
EDUC 1164	Teacher Field Experience II	2
EDUC 4299	Student Teaching	12

Justification for request
Changes in gen ed prerequisites
Elimination of courses no longer offered
Supporting Documents
Course Reviewer Comments
cassa (03/18/24 10:16 am): Rollback: Rolled back to add the new emphasis area in Military Science and Leadership.
cassa (03/18/24 6:48 pm): Consistency in comments
jpnfd (04/01/24 2:29 pm): Rollback: Department revisions
cassa (04/01/24 3:02 pm): Updates to make more consistent with BIT degrees.
jpnfd (04/12/24 9:23 am): Regarding changes to the concentration areas, per email from Dr.Raper on 4/4/24: "The changes to the BS program do not need to leave the campus. It is not considered a significant change."
jpnfd (04/12/24 10:15 am): Per email from Educ chair on 4/12/24, no approvals are needed for the changes to the secondary ed emphasis area.

Key: 148

Program Change Request

Date Submitted: 04/16/24 10:52 am

Viewing: CHEM-BS : Chemistry BS

File: 16.49

Last approved: 04/15/24 4:07 pm

Last edit: 04/18/24 9:02 am

Changes proposed by: jpnfd

Catalog Pages Using this Program
Chemistry

Start Term
Fall 2024
Program Code
CHEM-BS
Department
Chemistry
Title
Chemistry BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 04/18/24 9:10 am Chariklia Sotiriou-Leventis (cslevent): Approved for RCHEMIST Chair
2. 04/18/24 9:14 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/18/24 10:39 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Apr 28, 2014 by Thomas Schuman (tschuman)
2. Jun 19, 2015 by Klaus Woelk (woelkk)
3. Jun 28, 2017 by Thomas Schuman (tschuman)
4. May 3, 2018 by Thomas Schuman (tschuman)
5. Dec 3, 2019 by Thomas Schuman (tschuman)
6. Sep 2, 2020 by Crystal Wilson

(wilsoncry)
7. Jun 10, 2021 by Thomas Schuman (tschuman)
8. Jun 14, 2022 by Thomas Schuman (tschuman)
9. Apr 1, 2024 by Thomas Schuman (tschuman)
10. Apr 15, 2024 by Evie Sherlock (esdk3)

Bachelor of Science
Chemistry

A minimum of 120 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 twelve (12) semester hours in humanities and must include ENGLISH 1120 and ENGLISH 1160 or ENGLISH 3560 . A minimum of nine (9) 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.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 1100	1	CHEM 1320	3
CHEM 1110	1	CHEM 1510	2
CHEM 1310	4	MATH 1215	4
CHEM 1319	1	COMP SCI 1500	3
MATH 1214 or 1210 ***and*** 1211	4	ENGLISH 1160	3
ENGLISH 1120	3		
	14		15
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 2210	3	CHEM 2220	3
CHEM 2219	1	CHEM 2229	1
MATH 2222	4	CHEM 2410	3
PHYSICS 1135	4	CHEM 2510	4
Humanities elective	3	PHYSICS 2135	4
	15		15
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 2420	3	CHEM 2459	2
CHEM 3310	3	CHEM 3320	3
CHEM 3510	4	CHEM 3329	1
STAT 3113 or 3115	3	CHEM 4010 or 4099	1
Humanities elective	3	CHEM 4099	1
		Social science elective	3
		General elective	3

	16		14
Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 4099	1	CHEM 4297	3
CHEM 4610	3	Social science elective	3
CHEM 4810	3	General electives	9
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3		
General electives	6		
	16		15
Total Credits: 120			

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: The degree has eighteen (18) hours of general electives credit that may not include Math courses prerequisite to calculus. Not more than one (1) credit hour of CHEM 4010 can be included for degree credit. Up to eight (8) credit hours may be taken of CHEM 4099.

Chemistry
Biochemistry Emphasis Area

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 1100	1	BIO SCI 2213	3
CHEM 1110	1	BIO SCI 2219	1
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	CHEM 1510	2
ENGLISH 1120	3	ENGLISH 1160	3
MATH 1214 or 1210 ***and*** 1211	4	MATH 1215	4
	14		16
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 2210	3	CHEM 2220	3
CHEM 2219	1	CHEM 2229	1
COMP SCI 1500	3	CHEM 2410	3
MATH 2222	4	CHEM 2510	4
PHYSICS 1135	4	PHYSICS 2135	4
	15		15
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 2420	3	CHEM 3329	1
CHEM 3310	3	CHEM 3320	3
CHEM 4610	3	CHEM 2459	2
CHEM 4619	2	CHEM 4620	3
STAT 3113 or 3115	3	CHEM 4099	1
		CHEM 4010 or 4099	1
		Humanities elective	3
	14		14

Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 3510	4	CHEM 4297	3
CHEM 4099	1	Social science electives	6
CHEM 4810	3	General electives	6
CHEM 4630	3		
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3		
Humanities elective	3		
	17		15
Total Credits: 120			

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: The degree has six (6) credit hours of general electives credit that may not include Math courses prerequisite to calculus.Three (3) hours upper technical elective credit must be 2xxx, 3xxx, 4xxx (or 5xxx or higher with permission) level in chemistry or can be taken in another technical area with permission of department. Not more than 1 credit hour of CHEM 4010 can be included for degree credit. Up to eight (8) credit hours may be taken of CHEM 4099.

Polymer & Coatings Science Emphasis Area

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 1100	1	CHEM 1320	3
CHEM 1110	1	CHEM 1510	2
CHEM 1310	4	COMP SCI 1500	3
CHEM 1319	1	ENGLISH 1160	3
MATH 1214 or 1210 ***and*** 1211	4	MATH 1215	4
ENGLISH 1120	3		
	14		15
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 2210	3	CHEM 2220	3
CHEM 2219	1	CHEM 2229	1
CHEM 4810	3	CHEM 2410	3
MATH 2222	4	CHEM 2510	4
PHYSICS 1135	4	PHYSICS 2135	4
	15		15
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 2420	3	CHEM 2459	2
CHEM 3310	3	CHEM 3320	3
CHEM 3510	4	CHEM 4850	3
PHYSICS 4523	3	CHEM 3329	1
STAT 3113 or 3115	3	CHEM 4099	2
		Humanities elective	3
		Social science elective	3
	16		17

Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 4010	1	CHEM 4297	3
CHEM 4099	1	Social science elective	3
CHEM 4610	3	General electives	6
CHEM 4819	1		
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3		
Humanities elective	3		
General electives	4		
	16		12
Total Credits: 120			

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: The degree has ten (10) credit hours of general electives credit that may not include Math courses prerequisite to calculus. Not more than 1 credit hour of CHEM 4010 can be included for degree credit. Up to eight (8) credit hours may be taken of CHEM 4099.

Pre-medicine Emphasis Area

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM 1100	1	BIO SCI 1113	3
CHEM 1110	1	CHEM 1320	3
CHEM 1310	4	CHEM 1510	2
CHEM 1319	1	ENGLISH 1160 or 3560	3
MATH 1214 or 1210 ***and*** 1211	4	MATH 1215	4
ENGLISH 1120	3		
	14		15
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
BIO SCI 2213	3	BIO SCI 2223	3
BIO SCI 2219	1	CHEM 2220	3
CHEM 2210	3	CHEM 2229	1
CHEM 2219	1	CHEM 2510	4
COMP SCI 1500	3	PHYSICS 2145	4
PHYSICS 1145	4		
	15		15
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
BIO SCI 3333	3	BIO SCI 3343	3
BIO SCI 3359	1	CHEM 2410	3
CHEM 3310	3	CHEM 3329	1
CHEM 4610	3	CHEM 4010 or 4099	1
CHEM 4619	2	~~CHEM 4099~~	~~1~~

STAT 3425	4	CHEM 4620	3
		PSYCH 1101	3
	16		14

Senior Year

First Semester	Credits	Second Semester	Credits
CHEM 3510	4	BIO SCI 3313	3
CHEM 4630	3	CHEM 4297	3
CHEM 4650	3	Humanities elective	3
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	Social science elective	3
Humanities elective	3	General elective	3
	16		15
Total Credits: 120			

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: The degree has three (3) credit hours of general electives credit that may not include Math courses prerequisite to calculus. Not more than 1 credit hour of CHEM 4010 can be included for degree credit. Up to eight (8) credit hours may be taken of CHEM 4099.

Justification for request
Updated STAT 3425 from 3 to 4 credit hours under the Pre-medicine Emphasis Area. Total hours changed from 120 to 121 under the Pre-medicine Emphasis Area.
Supporting Documents
Course Reviewer Comments
jpnfd (04/18/24 9:02 am): Per department chair request on 4/18/24, removed Chem 4099 from Junior year 2nd semester so total credit hours remain at 120.

Key: 16

Program Change Request

Date Submitted: 03/29/24 1:02 pm

Viewing: CR ENG-BS : Ceramic Engineering BS

File: 149.37

Last approved: 04/06/22 12:32 pm

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

Changes proposed by: lipked

Catalog Pages Using this Program
Ceramic Engineering

Start Term
Fall 2024 ~~2022~~
Program Code
CR ENG-BS
Department
Materials Science & Engineering
Title
Ceramic Engineering BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/29/24 8:07 pm Michael Moats (moatsm): Approved for RMATSENG Chair
2. 04/05/24 2:24 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/12/24 8:31 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

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

Bachelor of Science
Ceramic Engineering

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. These credit hours must be taken in humanities or social sciences and must meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.
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**
FR ENG 1100	1	MATH 1215 or 1221	4
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	PHYSICS 1135	4
MATH 1214 or 1211	4	H/SS Elective	3
ENGLISH 1120	3	MECH ENG 1720	3
H/SS Elective	3		
	16		17
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CER ENG 2110	3	CER ENG 2120	3
CER ENG 2315	2	CER ENG 2210	2
CER ENG 3230	3	CER ENG 2325	2
MATH 2222	4	MATH 3304[1]	3
PHYSICS 2135	4	H/SS Elective	3
		CIV ENG 2200	3
	16		16
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CER ENG 3315	2	CER ENG 3325	2
CER ENG 3220	3	CER ENG 3410	3
CIV ENG 2210	3	PHYSICS 2305	3
CER ENG 3210	3	H/SS Elective	3
H/SS Elective	3	Advanced Chemistry Elective[3]	3
Technical Elective[2]	2	CER ENG 4410	3
	16		17
Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CER ENG 4096	3	CER ENG 4097	3
CER ENG 4310	3	CER ENG 4220	3
CER ENG 4250	3	CER ENG 4240	3
Technical Elective[2]	3	Statistics Elective[1]	3
H/SS Elective	3	Technical Elective[2]	3

	15	15
Total Credits: 128		

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1 All ceramic engineering students must take MATH 3304 and one statistics course (3000-level or higher).

2 Technical electives must be selected from upper level engineering and science courses with the advisor's approval.

3 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 3310,CHEM 3420, CHEM 4310, or CHEM 4810.

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.

Justification for request

CHEM 3410 and CHEM 3420 are approved for deactivation in Fall 2024. Removing from advanced chemistry elective list in footnote 3.

Supporting Documents

Course Reviewer Comments

esdk3 (04/05/24 2:24 pm): added back CHEM 3420 as it is to be reactivated (it was erroneously deactivated) for FS24 - es 4/5/24

Key: 149

Program Change Request

Date Submitted: 04/03/24 4:15 pm

Viewing: CYBERMG-MI : Cybersecurity Management and Information Assurance Minor

File: 247.26

Last approved: 06/10/21 4:07 pm

Last edit: 04/05/24 3:10 pm

Changes proposed by: cecq8z

Catalog Pages Using this Program
Business and Management Systems
Information Science and Technology

Start Term
Fall 2024 ~~2021~~
Program Code
CYBERMG-MI
Department
Business and Information Technology
Title
Cybersecurity Management and Information Assurance Minor

Program Requirements and Description

In Workflow

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

Approval Path

1. 04/03/24 2:23 pm Cassie Elrod (cassa): Rollback to Initiator
2. 04/04/24 1:57 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
3. 04/05/24 3:11 pm Evie Sherlock (esdk3): Approved for CCC Secretary
4. 04/05/24 3:24 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
5. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Apr 7, 2017 by barryf
2. Jun 26, 2017 by kristyg
3. Jun 26, 2017 by Crystal Wilson (wilsoncry)
4. Feb 3, 2021 by Cecil Eng Huang Chua (cchua)
5. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)

Minor in Cybersecurity Management and Information Assurance

This minor requires the following 15 hours of coursework:

BUS 5910	Privacy and Information Security	3
~~IS&T 5780~~	~~Human and Organizational Factors in Cybersecurity~~	~~3~~
IS&T 3333	Data Networks and Information Security	3
IS&T 3420	Introduction to Data Science and Management	3
IS&T 5680	Digital Media Development and Interactive Design	3
IS&T 5725	Course IS&T 5725 Not Found	

~~The following three courses are required:~~

~~Two of the following courses must also be taken:~~		~~6~~
~~ERP 5240~~	~~Enterprise Application Development and Software Security~~	
~~IS&T 3420~~	~~Introduction to Data Science and Management~~	
~~IS&T 4641~~	~~Digital Commerce and IoT Analytics~~	
~~IS&T 5335~~	~~Fundamentals of Mobile Technology for Business~~	

Justification for request

Cleaning up courses due to low staffing.

Supporting Documents

Course Reviewer Comments

cassa (04/03/24 2:23 pm): Rollback: BUS 5910, IST 3333, IST 3420, IST 5680, IST 5725 should be the only courses listed for this minor now...so the headers can be removed and courses combined into one list. "This minor requires the following 15 hours...." should stay in place.

esdk3 (04/05/24 3:10 pm): edited effective date to Fall 24 -es 4/5

Key: 247

Program Change Request

Date Submitted: 03/18/24 3:06 pm

Viewing: DDA-CTU : Decision Data Analytics - CTU

File: 395.10

Last approved: 05/02/23 10:00 am

Last edit: 04/05/24 2:45 pm

Changes proposed by: davismc

Catalog Pages Using this Program
Economics

Start Term
Fall 2024 ~~2023~~
Program Code
DDA-CTU
Department
Economics
Title
Decision Data Analytics - CTU

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/21/24 2:25 pm Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 04/05/24 2:45 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:24 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 2, 2023 by Michael Davis (davismc)

Decision Data Analytics

This certificate aims to offer students across the campus an opportunity to gain knowledge and experience hands-on practices in Decision Data Analytics. There is an increasing market demand for decision data scientists, who are equipped with the talents to manage and analyze data and apply the results to fine decision-making, in a variety of economic, social, and scientific fields. The certificate is designed to turn S&T students into data-driven professionals through a case study and project-based curriculum where they will learn by doing. A unique feature of this certificate is that corporate executives will teach 50% of the certificate (one course on Data Intelligence and another course on Data Insights) so that students learn valuable perspectives from today's marketplace. This four-course Decision Data Analytics certificate develops the knowledge and skills in programming, economic modeling, forecasting, econometrics, and data analytics necessary to play a leading role in decision-making at private corporations, government agencies, and international organizations.

To be awarded a certificate in Decision Data Analytics, a student must meet the general requirement of taking the following four courses (12 credit hours):		
ECON 3300	Introduction to Econometrics	3
ECON 3333	Computational Economics	3
~~ECON 5350~~	~~Data Intelligence using Case Studies~~	~~3~~
ECON 5360	Data Driven Strategic Insights	3
ECON 5380	Course ECON 5380 Not Found	

Justification for request

Renumbering of Econ 5350 to 5380.

Supporting Documents

~~Econ-Undergrad CTs.pdf~~

~~MST PC January 2023.pdf~~

~~Econ-UGCT-Course change.pdf~~

Course Reviewer Comments

esdk3 (04/05/24 2:45 pm): updated effective date to Fall 24 -es 4/5/24

Key: 395

Program Change Request

Date Submitted: 03/28/24 11:52 am

Viewing: E ECON-CTU : Energy Economics - CTU

File: 396.10

Last approved: 05/02/23 10:01 am

Last edit: 03/29/24 3:46 pm

Changes proposed by: mlc2d

Catalog Pages Using this Program
Economics

Start Term
Fall 2024 ~~2023~~
Program Code
E ECON-CTU
Department
Economics
Title
Energy Economics - CTU

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/28/24 11:52 am Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 03/29/24 3:46 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/29/24 4:08 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 2, 2023 by Michael Davis (davismc)

Energy Economics

This certificate aims to offer students across the campus an opportunity to gain knowledge in Energy Economics. Missouri S&T is recognized as one of the top universities in the nation offering energy engineering programs, and this certificate will further synergize with S&T's research and education focus in energy. This certificate focuses on addressing current and future energy challenges in a comprehensive manner by studying energy choices, policies, and their impacts on the sustainability of the economy, the welfare of society, and the environmental conditions. The Energy Economics certificate is complementary to those pursuing an undergraduate degree with a focus on energy engineering, environmental sciences, or sustainability. The certificate is especially valuable to students interested in a career in the energy sector.

General requirement: Four classes (12 credit hours) in economics or related disciplines.

Required Two Classes (6 hours):		
ECON 4440	Environmental And Natural Resource Economics	3
ECON 4540	Energy Economics	3
Two of the following classes (6 hours):		
CHEM ENG 5325	Carbon Capture Process Engineering	3
ELEC ENG 3540	Power System Design And Analysis	3
ELEC ENG 5150	Photovoltaic Systems Engineering	3
ELEC ENG 5510	Electric-Drive Vehicles	3
ECON 3512	Mining Industry Economics	3
or ECON 5532	Advanced Mining Economics	
~~ECON 5532~~	~~Advanced Mining Economics~~	~~3~~
~~One of the following two classes (3 hours):~~		
ENG MGT 5513	Energy and Sustainability Management Engineering	3
ENV ENG 5642	Sustainability, Population, Energy, Water, and Materials	3
MECH ENG 5541	Applied Energy Conversion	3
MECH ENG 5543	Energy Efficiency of Vehicles	3
MS&E 5230	Energy Materials	3
PET ENG 4531	Natural Gas Engineering	3
PET ENG 4590	Subsurface Energy Economics	3
PET ENG 5050	Carbon Storage	3
PET ENG 5801	Petroleum Data Analytics	3
NUC ENG 4207	Nuclear Fuel Cycle	3
NUC ENG 4281	Probabilistic Risk Assessment	3

Justification for request

To give engineering students more flexibility in selecting two energy engineering courses qualified for the certificate, the department has worked with engineering chairs to determine 16 qualified engineering courses.

Supporting Documents

~~Econ-Undergrad CTs.pdf~~

~~Energy Econ CT Courses.pdf~~

~~MST PC January 2023.pdf~~

Course Reviewer Comments

jpnfd (03/29/24 3:40 pm): Updated term to Fall 2024.

jpnfd (03/29/24 3:46 pm): Per email from provost office on 2/28/24 from Dr. Raper, this change would not require addition approvals.

Key: 396

Program Change Request

A deleted record cannot be edited

Program Deactivation Proposal

Date Submitted: 03/18/24 2:24 pm

Viewing: E/T ECN-MI : E/T Economics Minor

File: 37.7

Last approved: 02/03/21 10:51 am

Last edit: 03/18/24 2:24 pm

Changes proposed by: mlc2d

Catalog Pages Using this Program
Economics

Start Term
Fall 2024 ~~2021~~
Program Code
E/T ECN-MI
Department
Economics
Title
E/T Economics Minor

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/21/24 2:23 pm Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 03/28/24 10:57 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/28/24 11:26 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 7, 2014 by Lahne Black (lahne)
2. May 7, 2014 by Lahne Black (lahne)
3. Feb 3, 2021 by Michael Davis (davismc)

Energy/Technology Minor

(15 hours)

Required courses:

ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3
ECON 2100	Intermediate Microeconomic Theory	3
And 6 hours from:		
ECON 4300	Research Methods and Applications in Economics and Business	3
ECON 4430	Cost-Benefit Analysis	3
ECON 4440	Environmental And Natural Resource Economics	3
ECON 4540	Energy Economics	3
ECON 4130	Network Economy	3

Justification for request

We no longer offer courses needed to support this minor.

Supporting Documents

Course Reviewer Comments

Key: 37

Program Change Request

A deleted record cannot be edited

Program Deactivation Proposal

Date Submitted: 04/18/24 2:20 pm

Viewing: ECON-BA : Economics BA

File: 38.45

Last approved: 06/07/23 8:42 am

Last edit: 04/18/24 2:20 pm

Changes proposed by: davismc

Catalog Pages Using this Program
Economics

Start Term
Fall 2024 ~~2023~~
Program Code
ECON-BA
Department
Economics
Title
Economics BA

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/21/24 2:23 pm Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 03/28/24 12:43 pm Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 04/12/24 12:11 pm Melody Lo (mlc2d): Approved for RECONOMI Chair
4. 04/12/24 12:58 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
5. 04/12/24 1:02 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
6. 04/18/24 1:38 pm Jennifer Pohlsander (jpnfd): Rollback to Initiator
7. 04/18/24 3:37 pm Melody Lo (mlc2d): Approved for RECONOMI Chair
8. 04/18/24 3:43 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
9. 04/18/24 3:47 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC

Chair
10. 04/18/24 3:50 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Aug 14, 2014 by Lahne Black (lahne)
2. Jul 20, 2015 by pantaleoa
3. Nov 18, 2015 by marcys
4. Aug 14, 2017 by Crystal Wilson (wilsoncry)
5. Jun 18, 2018 by marcys
6. Jun 10, 2021 by Michael Davis (davismc)
7. Jun 7, 2023 by Michael Davis (davismc)

Bachelor of Arts
Economics

In addition to the general university requirements for a bachelor of arts degree, a student must complete:

1. ECON 1100, ECON 1200, ECON 2100, ECON 2200, ECON 3300 and ECON 3333 with a minimum grade of “C” in each.
2. At least 12 additional hours of economics electives, at or above the 2000 level, with a minimum grade of “C” in each.
3. BUS 1210; and STAT 3111.

Specific requirements for the Bachelor of Arts degree are outlined in the sample program listed below.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
ECON 1100[1]	3	ECON 1200[1]	3
BIO SCI 1113, or 1173, or 1223, or BIO SCI 1943	3	HISTORY 1100	3
ENGLISH 1120	3	MATH 1212	4
MATH 1140	3	Social Sciences (Political Science, Psychology or Sociology)	3
		COMP SCI 1972	2
		COMP SCI 1982	1
	12		16
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
ECON 2100[1]	3	ECON 2200[1]	3
ENGLISH 1211, or 1212, or 1221, or 1222, or 1231, or 2230	3	Chemistry, Geology, Geophysics or Physics	3
HISTORY 1200	3	ART 1180, or 1185, or MUSIC 1150, or THEATRE 1190	3
Foreign Language	4	FOREIGN LANGUAGE	4
STAT 3111	3	BUS 1210	3
	16		16

Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
ECON 3300[1]	3	ECON 3333[1]	3
Any Philosophy	3	Social Sciences (Political Science, Psychology or Sociology)	3
Social Sciences (Political Science, Psychology or Sociology)	3	Economics Elective[2]	3
Economics Elective [2]	3	Any course in Literature, Philosophy or Arts	3
Free Elective	4	FOREIGN LANGUAGE	4
	16		16
Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
Economics Elective[2]	3	Economics Elective[2]	3
Social Sciences (Political Science, Psychology or Sociology)	3	Free Elective	10
Free Electives	9		
	15		13
Total Credits: 120			

1 A grade of C or better is required for ECON 1100, ECON 1200, ECON 2100, ECON 2200, ECON 3300 and ECON 3333.

2 Must be 2000 level or higher, with a minimum grade of C.

Decision Data Analytics Emphasis

Junior and Senior Years		
ECON 5350	Data Intelligence using Case Studies	3
ECON 5360	Data Driven Strategic Insights	3

Financial Economics and Technology Emphasis

Junior and Senior Years		
ECON 4383	Financial Economics	3
ECON 5337	Financial Mathematics	3
ECON 5360	Data Driven Strategic Insights	3

Energy Economics Emphasis

Junior and Senior Years		
ECON 4440	Environmental And Natural Resource Economics	3
ECON 4540	Energy Economics	3
Choose one of the following courses:		
ECON 3512	Mining Industry Economics	3
ECON 5532	Advanced Mining Economics	3
Choose one of the following courses:		
ENG MGT 5513	Energy and Sustainability Management Engineering	3
CIV ENG 5642	Sustainability, Population, Energy, Water, and Materials	3

Bachelor of Arts
Economics (Secondary Education Emphasis Area)

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

Students interested in this emphasis area should consult with the minor advisor in the economics department.

In order to successfully complete this emphasis area, students must attain at least a 3.0 GPA in content courses and professional education courses. Students must also

meet all requirements listed under the teacher education section of 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 135-137 credit hours. The required courses are provided below. A minimum grade of ”C” is required by the department in all mathematics and statistics courses counted toward this degree.

Communications Skills: 9 semester hours		
ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
or ENGLISH 3560	Technical Writing	
SP&M S 1185	Principles Of Speech	3
Humanities: 9 semester hours		
Must include 9 hours from each of the following 3 areas: Art, Music or Theatre, Philosophy, Literature		9
Social Sciences: 21 semester hours		
HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
HISTORY 2110	World Regional Geography	3
HISTORY 4435	History of the American West	3
POL SCI 1200	American Government	3
PSYCH 1101	General Psychology	3
PSYCH 4600	Social Psychology	3
Natural Sciences: 7 semester hours (including 1 lab)		
Physics or Geology w/Lab		4
BIO SCI 1113	General Biology	3
Mathematics: 3 semester hours		
MATH 1120	College Algebra	3-5
or MATH 1140	College Algebra	
or higher		
Professional Requirements: 23 semester hours		
EDUC 1040	Perspectives In Education	2
EDUC 1174	School Organization and Administration For Teachers	2
EDUC 3216	Instructional Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 4298	Student Teaching Seminar	1
ENGLISH 3170	Teaching And Supervising Reading and Writing	3
PSYCH 2300	Educational Psychology	3
or EDUC 2102	Educational Psychology	
PSYCH 3310	Developmental Psychology	3
PSYCH 4310	Psychology Of The Exceptional Child	3
or EDUC 2310	Education Of The Exceptional Child	
Clinical Experience: 15 semester hours		
EDUC 1104	Teacher Field Experience I	1
EDUC 1164	Teacher Field Experience II	2
EDUC 4299	Student Teaching	12
Economics: 30 semester hours		
ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3
ECON 2100	Intermediate Microeconomic Theory	3

ECON 2200	Intermediate Macroeconomic Theory	3
ECON 4300	Research Methods and Applications in Economics and Business	3
Econ Electives (3000 or 4000 level)		12
BUS 1210	Financial Accounting	3
Certification: 18 semester hours		
Am History (from approved DESE list)		6
European History (from approved DESE list)		9
Upper Pol Sci (from approved DESE list)		3

Justification for request

English deactivated English 1223.

The department has made BS and BA Economics STEM-designated Economics degree programs, with almost the same required major courses, to align with a STEM-focused research university. The general perception in academia is that BA Economics is for students with less (or little) capacity in quantitative methodologies. This is not the case for BA Economics at S&T. Therefore, we need to delete BA Economics to provide the market with a clear signal that S&T's Economics degree program is for students who want to pursue highly "quantitative" economics.

Supporting Documents

~~Econ-Emphasis.pdf~~

~~MST PC January 2023.pdf~~

Deactivation BA Econ.pdf

Course Reviewer Comments

jpnfd (03/28/24 12:43 pm): Rollback: Rolled back to the department to attach supporting documents.

jpnfd (04/18/24 1:38 pm): Econ BA deactivation documentation attached.

jpnfd (04/18/24 1:38 pm): Rollback: Please resubmit as a deactivation.

Key: 38

Program Change Request

Date Submitted: 03/18/24 2:38 pm

Viewing: ECON-BS : Economics BS

File: 39.47

Last approved: 06/07/23 8:42 am

Last edit: 03/28/24 9:33 am

Changes proposed by: davismc

Catalog Pages Using this Program
Economics

Start Term
Fall 2024 ~~2023~~
Program Code
ECON-BS
Department
Economics
Title
Economics BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/21/24 2:24 pm Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 04/05/24 2:44 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:25 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 28, 2015 by pantaleoa
2. May 28, 2015 by pantaleoa
3. Nov 18, 2015 by marcys
4. Aug 14, 2017 by Crystal Wilson (wilsoncry)
5. Jun 10, 2021 by Michael Davis (davismc)
6. Jun 7, 2023 by Michael Davis (davismc)

Bachelor of Science
Economics

In addition to the general university requirements for a bachelor of science degree, a student must complete:

1. ECON 1100, ECON 1200, ECON 2100, ECON 2200, ECON 3300, ECON 3333, and ECON 4538 with a minimum grade of “C” in each.
2. At least 9 additional hours of economics electives, at or above the 2000 level, with a minimum grade of “C” in each.
3. BUS 1210, ENG MGT 2110, and STAT 3111.

Specific requirements for the Bachelor of Science degree are outlined in the sample program listed below.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
ECON 1100[3]	3	ECON 1200[3]	3
ENGLISH 1120[1]	3	HISTORY 1200, or 1300, or 1310	3
BIO SCI 1113, or 1173, or 1223	3	MATH 1212	4
Lab w/Living or Physical Science Course	1	PSYCH 1101	3
MATH 1140	3	IS&T 1551, or 1561, or COMP SCI 1971[4]	3
	13		16
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
ECON 2100[3]	3	ECON 2200[3]	3
SP&M S 1185	3	Chemistry, Geology, Geophysics, or Physics	3
ENGLISH 1211, or 1212, or 1231, or 1221, or 1222, or 2230	3	ART 1180, or 1185, or MUSIC 1150, or THEATRE 1190	3
STAT 3111	3	BUS 1210	3
Free Elective	3	Free Electives	3
	15		15
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
ECON 3300[3]	3	ECON 3333[3]	3
ENGLISH 1600	3	Culture, Society and Religion[2]	3
POL SCI 1200	3	Economics Electives[5]	3
ENG MGT 2110	3	Free Elective	6
Economics Elective[5]	3		
	15		15
Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
ECON 4538[3]	3	Economics Elective[5]	3
Free Electives	12	Free Electives	13
	15		16
Total Credits: 120			

1 In-Major Writing Intensive

2 One of ENGLISH 2410, ENGLISH 3215, ENGLISH 4290, Foreign Language Beyond Second Semester, HISTORY 3321, PHILOS 3225, PHILOS 3235, PHILOS 1175, PHILOS 4340, Any Political Science, PSYCH 4600, PSYCH 4992, Any Sociology, SP&M S 3235.

3 A Grade of "C" or better is required for ECON 1100, ECON 1200, ECON 2100, ECON 2200, ECON 3300, ECON 3333 and ECON 4538.

4

COMP SCI 1971 must also include COMP SCI 1981.

5

Must be 2000 level or higher, with a minimum grade of C.

Decision Data Analytics Emphasis

Junior and Senior Years		
~~ECON 5350~~	~~Data Intelligence using Case Studies~~	~~3~~
ECON 5360	Data Driven Strategic Insights	3
ECON 5380	Course ECON 5380 Not Found	3

Financial Economics and Technology Emphasis

Junior and Senior Years		
ECON 4383	Financial Economics	3
ECON 5337	Financial Mathematics	3
ECON 5360	Data Driven Strategic Insights	3

Energy Economics Emphasis

Junior and Senior Years		
ECON 4440	Environmental And Natural Resource Economics	3
ECON 4540	Energy Economics	3
Choose one of the following courses:		
ECON 3512	Mining Industry Economics	3
ECON 5532	Advanced Mining Economics	3
Choose one of the following courses:		
ENG MGT 5513	Energy and Sustainability Management Engineering	3
CIV ENG 5642	Sustainability, Population, Energy, Water, and Materials	3

Justification for request

Updating course number for 5380.

Supporting Documents

~~Econ-Emphasis.pdf~~

~~MST PC January 2023.pdf~~

~~Substantive Curriculum Change Criteria (11-17-2022).pdf~~

~~Email MHHEWD Approval.pdf~~

Course Reviewer Comments

esdk3 (03/27/24 8:58 am): removed Bio Sci 1943 from the plan of study grid for first semester of freshman year because Bio Sci 1943 has been deactivated. -3/27/24 - es

esdk3 (03/27/24 9:35 am): Removed ECON 3830 from footnote 2 because this course is being deactivated, effective fall 2024. 3/27/24-es

esdk3 (03/27/24 9:41 am): Removed English 2242 and English 2245 from footnote 2. Effective fall 2024 these courses are deactivated. 3/27/24-es Updated effective term on this DC to Fall 2024 3/27/24-es

jpnfd (03/28/24 9:33 am): Removed English 1223- no longer taught.

Key: 39

Program Change Request

Date Submitted: 03/20/24 9:13 am

Viewing: ENG MG-BS : Engineering Management BS

File: 44.55

Last approved: 06/07/23 8:43 am

Last edit: 04/16/24 12:53 pm

Changes proposed by: enke

Catalog Pages Using this Program
Engineering Management

Start Term
Fall 2024 ~~2023~~
Program Code
ENG MG-BS
Department
Engineering Management and Systems Engineering
Title
Engineering Management BS

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

Approval Path

1. 03/20/24 10:51 am David Enke (enke): Approved for RENGMNGT Chair
2. 04/04/24 12:50 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 8:38 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Sep 24, 2013 by Lahne Black (lahne)
2. Apr 28, 2014 by Stephen Raper (sraper)
3. Jun 12, 2014 by pantaleoa
4. Nov 18, 2014 by kleb6b
5. Jan 30, 2015 by Stephen Raper (sraper)
6. Jul 20, 2015 by pantaleoa
7. Jun 27, 2016 by Stephen Raper (sraper)
8. Jun 18, 2018 by Stephen Raper

(sraper)
9. Mar 3, 2020 by ershenb
10. Apr 6, 2022 by Stephen Raper (sraper)
11. Jun 14, 2022 by Jennifer Pohlsander (jpnfd)
12. Jun 7, 2023 by Joan Schuman (schumanj)

Bachelor of Science
Engineering Management

The engineering management 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.

> The bachelor of science degree in engineering management requires a minimum of 121 credit hours. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. An average of at least two grade points per credit hour must be attained. At least two grade points per credit hour must also be attained in all courses taken in engineering management.

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:

1. All students are required to take one American history course, one economics course, and ENGLISH 1120. 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. All students must choose one additional humanities or social science course that meets requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.
2. Depth requirement. Three credit hours must be taken in humanities or social sciences at the 2000-level or above and meets requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog. This course must have as a prerequisite one of the humanities or social sciences courses already taken. Foreign language courses numbered 1180 will be considered to satisfy this requirement. Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000-level or above. All courses taken to satisfy the depth requirement must be taken after graduating from high school.
3. The remaining two courses are to be chosen and meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog and ~~may~~ include ENGLISH 3560 (or ENGLISH 1160) and SP&M S 1185 ~~one communications course~~ in addition to ENGLISH 1120.
4. Any specific departmental requirements in the general studies area must be satisfied.
5. Special topics, special problems 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**
FR ENG 1100	1	MECH ENG 1720	3
CHEM 1310[1]	4	MATH 1215 or 1221[1]	4
CHEM 1319	1	PHYSICS 1135[1]	4
CHEM 1100	1	ECON 1100 or 1200	3
MATH 1214 or 1211[1]	4	Programming Elective[3]	3
ENGLISH 1120	3		
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3		
	17		17
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MATH 2222[1]	4	MATH 3304[1]	3
PHYSICS 2135[1]	4	STAT 3115 or 3117[1]	3
CIV ENG 2200[1]	3	ENG MGT 2110[1]	3

ENG MGT 1210[1]	2	ENG MGT 2211[1]	3
ENG MGT 2310[1]	3	PSYCH 1101	3
	16		15

Junior Year

First Semester	Credits	Second Semester	Credits
ENG MGT 3310[1]	3	ENG MGT 4710[1]	3
CIV ENG 2210	3	MECH ENG 2527	3
ENG MGT 3510[1]	3	ENGLISH 3560 or 1160	3
SP&M S 1185	3	ENG MGT 3320[1]	3
Humanities and Social Sciences[2]	3	MECH ENG 2350	2
	15		14

Senior Year

First Semester	Credits	Second Semester	Credits
Emphasis Area Required Course	3	ENG MGT Technical Elective	3
Emphasis Area Required Course	3	Emphasis Area Required Course	3
Emphasis Area Required Course	3	ENG MGT 4907[1]	3
ENG MGT 4110[1]	3	Upper Level Hum/SS[2]	3
ELEC ENG 2800	3		
	15		12
Total Credits: 121			

Example Emphasis Area Programs for Engineering Management Students

One unique aspect of the engineering management degree is the student's ability to select an established emphasis area or create a specialized emphasis. Two examples of established emphasis areas are shown below.

Management of Technology

ENG MGT 5511	Technical Entrepreneurship	3
ENG MGT 5512	Legal Environment	3
ENG MGT 5410	Industrial System Simulation	3
ENG MGT 5614	Supply Chain Management Systems	3
ENG MGT Technical Elective (in consultation with your advisor)		3

Industrial Engineering

ENG MGT 4310	Materials Handling and Plant Layout	3
ENG MGT 4330	Human Factors	3
ENG MGT 5410	Industrial System Simulation	3
ENG MGT 5414	Introduction To Operations Research	3
ENG MGT Technical Elective (in consultation with your advisor)		3

General

Engineering Area Courses (Engineering Discipline)	12
ENG MGT-Technical Elective (in consultation with your advisor)	3

Note: All electives must be chosen in consultation with the student's advisor. Students must satisfy the common freshman year academic requirements in addition to the sophomore, junior, and senior year requirements listed above with a minimum of 121 hours.

1 Must have a grade of "C" or better in these courses for graduation. MATH 1208 and MATH 1221 may be substituted for MATH 1214 and MATH 1215, respectively.

2

Humanities and social science electives must be approved by the student's advisor. Students must comply with the general education requirements with respect to selection and depth of study. These requirements are specified in the current catalog.

3

The programming elective consists of a lecture and lab combination, and may be selected from COMP SCI 1971/COMP SCI 1981, COMP SCI 1972/COMP SCI 1982, or COMP SCI 1570/COMP SCI 1580. Note that COMP SCI 1570/COMP SCI 1580 requires one more credit hour than the other options. The lecture component must be completed with a grade of "C" or better.

Accelerated BS/MS Program Option for Engineering Management

Undergraduates currently majoring in Engineering Management at Missouri S&T may opt to apply for a Graduate Track Pathway, which allows students to transfer nine credit hours from their Missouri S&T Engineering Management bachelor's degree to their Engineering Management or Systems Engineering master's degree. In this pathway, a student can achieve both degrees faster than if pursuing the degrees separately. The benefits of the pathway for admitted students include:

1. Nine hours of 5000 graduate-level or above EMSE courses may be transferred from their Missouri S&T bachelor's degree to their EMSE master's degree,
2. The classes taken for shared BS/MS credit may be taken at the lower undergraduate tuition rate,
3. The GRE is not required for admission into the master's degree, and
4. Work on a thesis project may begin before the bachelor's degree requirements are completed (if thesis option is chosen)

No M.S. degree requirements are changed. The MS degree may be either a thesis or non-thesis option. To be admitted, the student must complete the Grad Track Pathway Admission and Course Approval Form. To be admitted to the student must have approval of their EMSE academic advisor. The program may be combined with existing honors research and emphasis area options. Admitted students will only have an undergraduate record in the Registrar's Office. Once they complete the bachelor's degree, and apply and are admitted into the master's degree then they will have a graduate record in the Registrar's Office. The Grad Track Pathway Admission and Course Approval Form must be completed when the student has one year left in the bachelor's program. Courses to be transferred will be identified on this form, and on Graduate Form 1, which is submitted after the student has been accepted to the master's program. Students must apply for admission to the master's program but will not be fully accepted until meeting all undergraduate degree requirements and earning their bachelor's degree. The nine hours of transferred coursework that will be taken as undergraduate credit must be approved by the student's academic advisor, and may not be undergraduate research, special problems, or courses transferred to the bachelor's degree.

To be eligible for the Grad Track Pathway, an EMSE undergraduate student must be:

•One year from graduation of their bachelor's degree (excluding the semester they are currently enrolled)

•Have at least a 3.50 GPA in all EMSE courses taken at Missouri S&T,

•Have a 3.0 cumulative GPA.

Students will be admitted into the master's degree, so long as they meet EMSE graduate student academic performance requirements: To remain in the pathway, the student must maintain good standing within the undergraduate EMSE program, and must maintain continuous enrollment at Missouri S&T. Students must maintain a cumulative GPA of at least 3.00 until they receive their bachelor's degree. Students must receive grades of B or better in the graduate courses they enroll in as part of the pathway course sequence. The semester admit term for the master's degree immediately follows the semester that the bachelor's degree is awarded. If the student exits the pathway before completion of the MS degree requirements, or fails to maintain continuous enrollment at Missouri S&T, the courses taken as part of the pathway may not apply toward graduate requirements in the event of future readmission. Credits earned in graduate-level courses will be posted according to established registrar procedures to the undergraduate transcript and will apply toward the student's undergraduate degree hours as needed to obtain the undergraduate degree and thus ensure all stated degree requirements are met. Once the bachelor's degree is awarded, the student is fully admitted to the master's program, Form 1 is approved, the courses from the pathway will be included on the student's graduate degree audit.

The student applicant is responsible for checking on how graduate coursework will affect scholarships and other financial aid. Once a student becomes a graduate student, they are not eligible for Federal Pell Grants, though are still eligible for Federal Financial Aid, and will be eligible for fellowships and teaching/research assistantships. International students should check with international affairs during completion of a Grad Track Pathway, to ensure immigration status will be maintained throughout the program.

Justification for request

Clarify that we require 9 hours of communication courses, specifically ENGLISH 3560 (or ENGLISH 1160) and SP&M S 1185 in addition to ENGLISH 1120. There has been past confusion with the existing statement.

Supporting Documents

Course Reviewer Comments

jpnfd (04/16/24 12:53 pm): Updated term to Fall 2024.

Key: 44

Program Change Request

Date Submitted: 03/22/24 9:14 am

Viewing: ENG MG-MS : Engineering Management MS

File: 46.15

Last approved: 04/07/22 3:54 pm

Last edit: 04/04/24 12:53 pm

Changes proposed by: enke

Catalog Pages Using this Program
Engineering Management

Start Term
Fall 2024 ~~2022~~
Program Code
ENG MG-MS
Department
Engineering Management and Systems Engineering
Title
Engineering Management MS

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

Approval Path

1. 03/22/24 10:19 am David Enke (enke): Approved for RENGMNGT Chair
2. 04/04/24 12:53 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 8:38 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2014 by pantaleoa
2. Jun 19, 2015 by Stephen Raper (sraper)
3. Jul 23, 2015 by pantaleoa
4. Apr 19, 2016 by pantaleoa
5. Jun 18, 2018 by Sarah Johnson (johsarah)
6. Jun 14, 2019 by Sarah Johnson (johsarah)
7. Apr 7, 2022 by Crystal Wilson (wilsoncry)

The M.S. degree program is offered on the Rolla campus and several locations including the West County Continuing Education Center in ~~Missouri S&T Global~~ St. Louis, Fort Leonard Wood (restricted to Engineer Captain's Career Course), and by distance education throughout the United States and selected international locations. Distance course lectures are archived upon completion of the lecture and all lectures are available to students through streaming video during the semester for review. These courses can be reached from anywhere at any time. It is feasible to obtain a Missouri S&T non-thesis M.S. degree regardless of your location.

The M.S. non-thesis program requires completion of at least 10 three-credit hour courses approved by the academic advisor. The M.S. with thesis option requires 30 credit hours including the thesis. All students are required to take the following:

Core Courses

ENG MGT 5111	Management for Engineers and Scientists
ENG MGT 5320	Project Management
ENG MGT 5412	Operations Management Science
ENG MGT 6211	Advanced Financial Management

Students are then encouraged to identify an emphasis area depending on their interests and to choose available courses from the selected area. However, courses can be chosen from more than one emphasis area. Students have the option to take up to two out-of-department elective courses.

Students must submit a typed Form I to the EMSE graduate office by the beginning of the semester of their 9th credit hour. Links to forms are available at: https://grad.mst.edu/currentstudents/forms/. Thesis students cannot register for Graduate Research (ENG MGT 6099) until their Form I is on file. If students vary from Form I, they must file a Form I-A and have it approved by their advisor to update their plan of study. Non-thesis students must take three 6000-level courses. Thesis students must take two 6000-level courses (in addition to ENG MGT 6099). Students must meet all requirements for graduation as specified in the Graduate Catalog for engineering management. A graduate student already holding or completing a master's degree may obtain a second M.S. in engineering management by completing at least an additional 24 credit hours of work.

Justification for request

Updating the name of the St. Louis facility.

Supporting Documents

Course Reviewer Comments

jpnfd (04/04/24 12:53 pm): Updated term to Fall 2024.

Key: 46

Program Change Request

Date Submitted: 03/22/24 9:16 am

Viewing: ENG MG-PHD : Engineering Management PhD

File: 47.6

Last approved: 06/10/21 4:07 pm

Last edit: 04/04/24 12:54 pm

Changes proposed by: enke

Catalog Pages Using this Program
Engineering Management

Start Term
Fall 2024 ~~2021~~
Program Code
ENG MG-PHD
Department
Engineering Management and Systems Engineering
Title
Engineering Management PhD

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

Approval Path

1. 03/22/24 10:19 am David Enke (enke): Approved for RENGMNGT Chair
2. 04/04/24 12:54 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 8:38 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Aug 5, 2014 by pantaleoa
2. Jul 23, 2015 by pantaleoa
3. Jun 10, 2021 by Steven Corns (cornss)

A candidate for the Ph.D. in engineering management must complete the equivalent of at least three years of full-time work beyond the bachelor's degree. The content of all Ph.D. programs is individually structured by the student in consultation with and approved by the student's advisory committee. All requirements for the degree must normally be completed within an eight-year period. At appropriate points in their program, Ph.D. students must pass both a qualifying examination and a comprehensive examination. Ph.D. students must conduct original research under the supervision of a doctoral advisor, and write and successfully defend the dissertation.

~~Some recent Ph.D.dissertation titles include:Balancing Labor Requirements in a Manufacturing Environment Enabling Flexibility Using System of Systems Engineering - Theories, Models, & Applications Development of a Modeling Algorithm to~~

~~Predict Lean Implementation Success Critical Success Factors and Risk Mitigation Strategy for New Product Development The Development of a Project Typology and Selection Tool to Improve Decision-Making in Sustainable Projects~~

Justification for request

Eliminating old dissertation titles from the catalog.

Supporting Documents

Course Reviewer Comments

jpnfd (04/04/24 12:54 pm): Updated term to Fall 2024.

Key: 47

Program Change Request

Date Submitted: 02/21/24 11:00 am

Viewing: FIN TCH-CT : Financial Technology, Analytics and Transformation ~~Technology~~ CT

File: 290.2

Last approved: 06/12/19 2:23 pm

Last edit: 04/01/24 11:56 am

Changes proposed by: cecq8z

Catalog Pages Using this Program
Business Administration

Start Term
Fall 2024 ~~2019~~
Program Code
FIN TCH-CT
Department
Business Administration
Title
Financial Technology, Analytics and Transformation ~~Technology~~ CT

Program Requirements and Description

In Workflow

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

Approval Path

1. 11/16/20 10:29 am siauk: Approved for RBUSADMN Chair
2. 11/16/20 2:17 pm Marita Raper (tibbettsmg): Rollback to Initiator
3. 02/21/24 10:59 am Cassie Elrod (cassa): Rollback to Initiator
4. 02/21/24 11:17 am Cassie Elrod (cassa): Approved for RBUSADMN Chair
5. 04/01/24 11:57 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
6. 04/01/24 11:58 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
7. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2019 by ershenb

Financial Technology

This certificate deals with the aim of making financial systems more efficient. It exists at the intersection of information systems and finance. FinTech is a range of disruptive technological approaches within the money, market, marketplace, and financial infrastructure spheres. From cryptocurrencies and blockchain to enterprise software and asset management via robo-advisors, financial service functions are increasingly based on growing and innovative technology.

A student admitted to this certificate must complete four courses:

Required core courses:	
FINANCE 5310	Financial Technology and Analytics
IS&T 5420	Business Analytics and Data Science
One or two courses from the following list:	
BUS 5230	Financial Statement Analysis (One course from the following list:)
FINANCE 5160	Corporate Finance II
FINANCE 5260	Investments I
One course from the following list:	
IS&T 5520	Data Science and Machine Learning with Python
~~IS&T 6450~~	~~Information Visualization~~
~~BUS 6723~~	~~Artificial Intelligence, Robotics, and Information Systems Management~~
~~IS&T 6780~~	~~Adv Human and Organizational Factors in Cybersecurity~~
IS&T 5450	Introduction to Information Visualization
IS&T 5780	Human and Organizational Factors in Cybersecurity
ERP 5210	Performance Dashboard, Scorecard and Data Visualization
IS&T 6723	Artificial Intelligence, Robotics, and Digital Transformation

Justification for request

Remove courses from the catalog

Supporting Documents

Revised-Financial Technology Analytics and Transformation-GCT-BIT-approved.pdf

MDHEW Title Change Approval.pdf

Course Reviewer Comments

tibbettsmg (11/16/20 2:16 pm): updated term to FS21. mt

tibbettsmg (11/16/20 2:17 pm): Rollback: IST 5620 doesn't exist and is not in current workflow. MT

cassa (02/21/24 10:59 am): Rollback: Change BUS 6723 to IST 6723. Approved on documents from Provost's Office so it should be good to go.

jpnfd (04/01/24 11:48 am): Updated term to Fall 2024.

jpnfd (04/01/24 11:49 am): MDHEW title change approval attached.

jpnfd (04/01/24 11:56 am): Edited "course" to "courses" in grid.

Key: 290

Program Change Request

Date Submitted: 04/12/24 9:45 am

Viewing: GE ENG-BS : Geological Engineering BS

File: 156.68

Last approved: 06/14/22 4:24 pm

Last edit: 04/12/24 11:58 am

Changes proposed by: grotekr

Catalog Pages Using this Program
Geological Engineering

Start Term
Fall 2024 ~~2022~~
Program Code
GE ENG-BS
Department
Geosciences and Geological and Petroleum Engineering
Title
Geological Engineering BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 04/08/24 10:16 am Stephen Gao (sgao): Approved for RGEOSENG Chair
2. 04/09/24 3:21 pm Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 04/12/24 9:45 am Stephen Gao (sgao): Approved for RGEOSENG Chair
4. 04/12/24 12:00 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
5. 04/16/24 10:42 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
6. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Mar 18, 2014 by Lahne Black (lahne)
2. Nov 18, 2014 by pantaleoa
3. Nov 18, 2014 by pantaleoa
4. Jul 20, 2015 by pantaleoa
5. Feb 27, 2018 by

Katherine Grote (grotekr)
6. Jun 18, 2018 by Katherine Grote (grotekr)
7. Jun 14, 2019 by Katherine Grote (grotekr)
8. Mar 3, 2020 by ershenb
9. Jul 1, 2020 by Leslie Gertsch (gertschl)
10. Jun 10, 2021 by Sharon Lauck (laucks)
11. Oct 28, 2021 by Katherine Grote (grotekr)
12. Jun 14, 2022 by Katherine Grote (grotekr)

Bachelor of Science
Geological Engineering

For the bachelor of science degree in geological engineering a minimum of 125 ~~128~~ credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. The student must maintain at least two grade points per credit hour (grade of C) for all courses taken in geological engineering. Their program of study must contain a minimum of 21 ~~18~~ credit hours of course work in the humanities and the social sciences areas, selected as described in the Engineering Degree Requirements section of this catalog. Geological engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade is not required; however, passing this examination is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process.

The geological engineering program at Missouri S&T is characterized by comprehensive understanding of the scientific basics of engineering and innovative application. We focus on solving the problems and meeting the needs of civilization as those are affected by geological materials, structures, or events. The necessary interactions required for this among the various sciences, engineering disciplines, and human professions are emphasized in research, analysis, synthesis, and design. Learning occurs in classroom, laboratory, online, field, and combined modes.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MATH 1214 or 1211[1]	4	MATH 1215[1]	4
CHEM 1100	1	MECH ENG 1720	3
CHEM 1310	4	PHYSICS 1135	4
CHEM 1319	1	GEO ENG 1150 or GEOLOGY 1110	3
ENGLISH 1120	3	Humanities/Soc Sci Elective[3]	3
FR ENG 1100	1		
~~Humanities/Soc Sci Elective[a]~~	~~3~~		
History elective[2]	3		
	17		17
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MATH 2222	4	MATH 3304	3
PHYSICS 2135	4	CIV ENG 2200	3
GEO ENG 3148	3	GEO ENG 2110	1

~~GEO ENG 3249~~	~~3~~	GEOLOGY 2611	3
~~Humanities/Soc Sci Elective[a]~~	~~3~~	GEO ENG 3175	3
Programming Elective[4]	3	Humanities/Soc Sci Elective[3]	3
	14		16

Junior Year

First Semester	Credits	Second Semester	Credits
MECH ENG 2350	2	CIV ENG 3330	3
CIV ENG 2210	3	CIV ENG 3715 or MIN ENG 5823	3
GEO ENG 5331	3	GEO ENG 5174	3
GEOLOGY 3310	3	~~Chemistry/Geochemistry Elective[b]~~	~~3~~
GEOLOGY 3319	1	Technical Elective[5]	3
ECON 1100 or 1200	3	Technical Elective[5]	3
	15		15

Senior Year

First Semester	Credits	Second Semester	Credits
GEO ENG 4010	0.5	GEO ENG 4010	0.5
GEO ENG 5441	3	GEO ENG 5090	3
GEO ENG 5443	3	Geo Eng Elective[7]	3
ENGLISH 3560	3	Eng Econ Elective[8]	3
Geophysics Elective[6]	3	Humanities/Soc Sci Elective[3]	3
Technical Elective[5]	3	Statistics Elective[9]	3
	15.5		15.5
Total Credits: 125			

~~a~~ ~~Humanities/Social Sciences Elective: This course sequence must provide both breadth and depth of content and meet requirements specified in the Engineering Degree Requirements section of the current undergraduate catalog. A total of 18 credit hours is required.~~

~~b~~ ~~Chemistry/Geochemistry Elective: Select from chemistry, geochemistry or biology courses as approved by advisor.c~~

~~Technical Elective: Select from advanced courses in science or engineering as approved by advisor.d~~ ~~Geophysics Elective: Select from GEO ENG 5736, GEO ENG 5761, or GEO ENG 5782.e~~

~~Geological Engineering Elective: Select from GEO ENG 5471, GEO ENG 5381, GEO ENG 5556, MIN ENG 5823, PET ENG 2510, PET ENG 3520, CIV ENG 3715, CIV ENG 4729, or CIV ENG 5715.f~~

~~Engineering Economics Elective: Select from ENG MGT 5210, MIN ENG 3512, or PET ENG 4590 or both ENG MGT 1100 and ENG MGT 1210.g~~

~~MATH 1208 or MATH 1211 may be substituted for MATH 1214. MATH 1221 may be substituted for MATH 1215.h~~

~~Statistics Elective: Select one course from GEO ENG 4115, STAT 3113, or STAT 3115.~~

1 = MATH 1208 or MATH 1211 may be substituted for MATH 1214. MATH 1221 may be substituted for MATH 1215.

2 = History Elective: choose one course from HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200

3 = Humanities/Social Sciences Elective: HSS courses may be selected from courses in art, English and technical communication, etymology, foreign languages, music, philosophy, speech and media studies, theatre, economics, history, political science, and psychology. A total of 9 credit hours is required. Transfer credits from other universities in sociology and general humanities may count as humanities or social science electives.

4 = Programming Elective: Select from COMP SCI 1500, both COMP SCI 1971 and COMP SCI 1981, or both COMP SCI 1972 and1982.

5 = Technical Elective: Select from advanced courses in engineering as approved by advisor.

6 = Geophysics Elective: Select from GEO ENG 5736, GEO ENG 5761, or GEO ENG 5782.

7 = Geological Engineering Elective: Select from GEO ENG 5471, GEO ENG 5381, GEO ENG 5556, MIN ENG 5823, PET ENG 2510, PET ENG 3520, CIV ENG 3715, CIV ENG 4729, or CIV ENG 5715.

8 =

	Engineering Economics Elective: Select from ENG MGT 5210, MIN ENG 3512, or PET ENG 4590 or both ENG MGT 1100 and ENG MGT 1210.	
9		
	Statistics Elective: Select one course from GEO ENG 4115, STAT 3113, or STAT 3115.	

Geological Engineering Focus Areas

The student uses the following course lists as guidance to satisfy the various elective requirements (chemistry/geochemistry, technical, geophysics, and geological engineering) while focusing preparation for their chosen career specialty. Other courses can be substituted with advisor approval.

Dual Professional Registration as a Geologist

GEOLOGY 2096	Field Geology	3
GEOLOGY 3410	Introduction To Geochemistry	3
GEOLOGY 3620	Stratigraphy And Sedimentation	3
GEOLOGY 4097	Advanced Field Geology	3
GEOLOGY 4841	Geological Field Studies	3
GEO ENG 5144	Remote Sensing Technology	3

Engineering Geology and Geotechnics

GEO ENG 5146	Applications Of Geographic Information Systems	3
GEO ENG 5471	Rock Engineering	3
CIV ENG 3715	Fundamentals of Geotechnical Engineering	3
CIV ENG 4729	Foundation Engineering	3
MIN ENG 5823	Rock Mechanics	3

Environmental and Engineering Geophysics

GEO ENG 5144	Remote Sensing Technology	3
GEO ENG 5736	Geophysical Field Methods	3
GEO ENG 5761	Transportation Applications of Geophysics	3
GEO ENG 5782	Environmental and Engineering Geophysics	3
GEOPHYS 4241	Electrical Methods In Geophysics	3
GEOPHYS 4261	Geophysical Instrumentation	1
GEOPHYS 5231	Seismic Data Processing	3

Groundwater Hydrology and Environmental Protection

GEO ENG 4276	Environmental Aspects Of Mining	3
GEO ENG 5233	Risk Assessment In Environmental Studies	3
GEO ENG 5235	Environmental Geological Engineering	3
GEO ENG 5237	Geological Aspects Of Hazardous Waste Management	3
GEO ENG 5320	Groundwater Modeling	3
GEO ENG 5381	Intermediate Subsurface Hydrology And Contaminant Transport Mechs	3
CIV ENG 5640	Environmental Law And Regulations	3
PET ENG 3330	Formation Evaluation	3

Quarry and Mine Engineering

GEO ENG 4276	Environmental Aspects Of Mining	3
GEO ENG 5471	Rock Engineering	3
GEO ENG 5575	Aggregates And Quarrying	3
CIV ENG 3116	Construction Materials, Properties And Testing	3
MIN ENG 3913	Mineral Identification and Exploration	3
MIN ENG 5612	Principles of Explosives Engineering	3
MIN ENG 5822	Course MIN ENG 5822 Not Found	3
MIN ENG 5823	Rock Mechanics	3

MIN ENG 5912	Mine Power and Drainage	3

Renewable and Conventional Energy Resources

GEO ENG 5146	Applications Of Geographic Information Systems	3
GEO ENG 5556	Renewable Energy Systems	3
GEOLOGY 4421	Radioactive Waste Management And Remediation	3
or NUC ENG 4367	Radioactive Waste Management And Remediation	
GEOLOGY 5511	Applied Petroleum Geology	3
MIN ENG 5322	Coal Mining Methods	3
MIN ENG 5422	Coal Preparation	3
MIN ENG 5823	Rock Mechanics	3
PET ENG 2510	Properties Of Hydrocarbon Fluids	3
PET ENG 3330	Formation Evaluation	3
PET ENG 3520	Petroleum Reservoir Engineering	3
PET ENG 4520	Well Test Analysis	3

Accelerated BS/MS Option (Graduate Pathway)

Students nearing completion of a BS in geological engineering can share up to nine 5000- or 6000-level credit hours toward their BS degree and a MS degree in geological engineering simultaneously, if they satisfy the following criteria:

- Have completed 64 credit hours of course work, including:
  - All chemistry and mathematics requirements, and
  - 21 credit hours of geological engineering courses with a minimum GPA of 3.20 in the geological engineering courses.
- Complete an application listing the courses to be shared, with approval from the undergraduate advisor and a recommendation from the geological engineering faculty member who agrees to serve as their MS advisor. The shared courses may not be undergraduate research, special problems, or transfer courses. Applications are due within one semester of completing the last shared course.
- Follow all geological engineering non-thesis MS program requirements (see the Graduate Catalog).

All other MS degree requirements remain the same. The program may be combined with existing honors research, emphasis areas, and certificate options. An additional six credit hours of coursework for graduate credit (beyond the shared BS/MS credits) can be taken while in the undergraduate program by applying for dual undergraduate/graduate enrollment. Taking additional courses for graduate credit as a dual enrolled student will require formal application to the graduate program. Upon application, acceptance to the geological engineering MS degree program from this option is automatic as long as the student remains in good standing (GPA above 3.0 and B's or better in all graduate courses within the program). To remain in this option, the student must meet geological engineering graduate academic performance requirements and maintain continuous enrollment at Missouri S&T. If the student exits the program before completion of the MS degree, or fails to maintain continuous enrollment at Missouri S&T, the shared-credit courses may not apply toward graduate requirements in the event of future readmission.

It is the student's responsibility to check how dual-enrollment status and graduate coursework would affect scholarships and other financial aid. Graduate students are not eligible for Federal Pell Grants, though they are eligible for Federal Financial Aid, as well as fellowships and teaching/research assistantships. International students are responsible for checking with the International Affairs Office during completion of an accelerated BS/MS to ensure immigration status is properly maintained throughout the program.

This option reduces the cost and the time required to earn a MS. See the Graduate Pathway section of this catalog, and the Geological Engineering Masters section of the Graduate Catalog, for additional details.

Justification for request

GE 3249 is not longer offered due to insufficient faculty. A introductory programming course is a good replacement.

Faculty decided that a general technical elective was more beneficial for students than requiring a geochemistry elective.

In our last ABET evaluation, we were told that technical electives must be engineering electives to meet the requisite number of engineering courses. For technical electives, we have accordingly removed the "science" option.

The former course plan required 18 credits of humanities/social sciences, which included the history and English requirements. The history and English requirements (including a requirement for English 3560) have now been listed separately for better clarity, and the remaining 12 hours of HSS courses has been reduced to 9 hours to match the university

requirements for engineering degrees.

Supporting Documents

Course Reviewer Comments

jpnfd (04/09/24 3:15 pm): Updated term to Fall 2024.

jpnfd (04/09/24 3:21 pm): Rollback: Please update the footnotes to a numbered list rather than alphabetically.

jpnfd (04/12/24 11:58 am): Updated total credit hours from 128 to 125.

Key: 156

Program Change Request

A deleted record cannot be edited

Program Deactivation Proposal

Date Submitted: 03/18/24 2:26 pm

Viewing: GS ECON-MI : Global Sustainable Economics Minor

File: 139.8

Last approved: 06/28/17 10:13 am

Last edit: 03/18/24 3:48 pm

Changes proposed by: mlc2d

Catalog Pages Using this Program
Economics

Start Term
Fall 2024 ~~08/14/2017~~
Program Code
GS ECON-MI
Department
Economics
Title
Global Sustainable Economics Minor

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/21/24 2:23 pm Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 03/29/24 3:52 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 7, 2014 by Lahne Black (lahne)
2. May 7, 2014 by Lahne Black (lahne)
3. Aug 15, 2014 by pantaleoa
4. Jun 28, 2017 by marcys

Global Sustainable Economics Minor

(15 hours)

Required courses:		
ECON 1100 & ECON 2100	Principles Of Microeconomics and Intermediate Microeconomic Theory	6
or ECON 1200 & ECON 2200	Principles Of Macroeconomics and Intermediate Macroeconomic Theory	
ECON 4641	Foundations of Sustainability	3

And 6 hours from:		
ECON 3512/MIN ENG 3512	Mining Industry Economics	3
ECON 4440	Environmental And Natural Resource Economics	3
ECON 4642	Introduction to Global Eco- and Social-preneurship and Innovation	3
ECON 4643	Ethical Problems in a Global Environment	3
ECON 4730	Course ECON 4730 Not Found	3
ECON 4540	Energy Economics	3
ENV ENG 5640	Environmental Law And Regulations	3
ENV ENG 5642	Sustainability, Population, Energy, Water, and Materials	3
PSYCH 4730	Environmental Psychology	3
HISTORY 4470	American Environmental History	3

Justification for request

We no longer offer courses to support this minor.

Supporting Documents

Course Reviewer Comments

mlc2d (03/18/24 3:48 pm): None.

Key: 139

Program Change Request

A deleted record cannot be edited

Program Deactivation Proposal

Date Submitted: 03/18/24 2:28 pm

Viewing: IN ECN-MI : International Economics Minor

File: 76.6

Last approved: 02/03/21 10:51 am

Last edit: 03/18/24 2:28 pm

Changes proposed by: mlc2d

Catalog Pages Using this Program
Economics

Start Term
Fall 2024 ~~2021~~
Program Code
IN ECN-MI
Department
Economics
Title
International Economics Minor

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/21/24 2:23 pm Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 03/28/24 11:00 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/28/24 11:26 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 7, 2014 by Lahne Black (lahne)
2. May 7, 2014 by Lahne Black (lahne)
3. Feb 3, 2021 by Michael Davis (davismc)

International Economics Minor

(15 hours)

Required courses:

ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3
ECON 2200	Intermediate Macroeconomic Theory	3
And 6 hours from:		
ECON 4710	International Trade	3
ECON 4720	International Finance	3
ECON 4730	Course ECON 4730 Not Found	3

Justification for request

We no longer offer courses to support this minor.

Supporting Documents

Course Reviewer Comments

Key: 76

Program Change Request

Date Submitted: 04/01/24 2:54 pm

Viewing: IST-BS : Information Science and Tch BS

File: 75.41

Last approved: 06/10/21 4:08 pm

Last edit: 04/05/24 4:21 pm

Changes proposed by: cassa

Catalog Pages Using this Program
Information Science and Technology

Start Term
Fall 2024 ~~2021~~
Program Code
IST-BS
Department
Business and Information Technology
Title
Information Science and Tch BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/18/24 10:18 am Cassie Elrod (cassa): Rollback to Initiator
2. 03/18/24 6:44 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
3. 04/01/24 2:29 pm Jennifer Pohlsander (jpnfd): Rollback to Initiator
4. 04/01/24 3:00 pm Cassie Elrod (cassa): Approved for RINFSCTE Chair
5. 04/12/24 3:35 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
6. 04/12/24 3:44 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
7. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Apr 28, 2014 by barryf
2. Jan 30, 2015 by barryf

3. Jul 21, 2015 by pantaleoa
4. Jul 21, 2015 by pantaleoa
5. Jul 28, 2015 by kleb6b
6. Mar 7, 2016 by barryf
7. Apr 21, 2017 by Crystal Wilson (wilsoncry)
8. Jun 18, 2018 by barryf
9. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)

Bachelor of Science
Information Science and Technology

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

A common departmental core of courses in Business ~~Management~~ and Information Technology helps provide students with skills to succeed in a fast-changing and globalized environment. Information Science and Technology (IS&T) Core courses and IS&T Electives provide students with comprehensive knowledge of information technology utilization in businesses. These courses include business analytics & data science, database management, systems analysis, introduction to data science and management, ~~computing internals,~~ networks and communications, and cybersecurity. ~~electronic and mobile commerce.~~ The electives for this degree consist of advanced coursework in the areas introduced by the required courses.

A minimum grade of "C" is required in the courses designated accordingly. ~~IS&T Core, IS&T Electives, Management, and Information Technology courses. Students have 9 credit hours for free electives.~~

Students have 9 credit hours for free electives.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
BUS 1810	1	BUS 1110	3
IS&T 1551	3	BUS 1210	3
IS&T 1750	3	IS&T 1552	3
~~7 credit hours of Mathematical Science or Science~~[5]	~~7~~	MATH 1212	4
ENGLISH 1120	3	~~IS&T 1561~~	~~3~~
Mathematical Science or Science Elective[1]	4	PSYCH 1101	3
	14		16
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
ERP 2110	3	~~IS&T 3131~~	~~3~~
SP&M S 1185	3	IS&T 3420	3
~~IS&T 1562~~	~~3~~	ECON 1100	3
~~ENGLISH 1600 or TCH COM 1600~~[6]	~~3~~	ENGLISH 2560 (or TECHCOM 2560)	3
ECON 1200	3	STAT 3111 or 1115	3
Mathematical Science or Science Elective[1]	3	Science Elective[2]	3
Fine Art, Social Science, or Humanities Elective[3]	3	~~IS&T Elective~~ [4]	~~3~~
	15		15

Junior Year

First Semester	Credits	Second Semester	Credits
FINANCE 2150	3	IS&T 3343	3
IS&T 3333	3	IS&T 4444	3
IS&T 3423	3	IS&T Elective	3
IS&T 4654	3	MKT 3110	3
IS&T Elective	3	~~IS&T 3420~~	~~3~~
		~~IS&T 4641~~	~~3~~
		~~ENGLISH 2560 or TCH COM 2560~~	~~3~~
		POL SCI 1200	3
	15		15

Senior Year

First Semester	Credits	Second Semester	Credits
IS&T 5520	3	BUS 5980	3
IST 5725	3	~~POL SCI 1200~~	~~3~~
IS&T Electives	6	IS&T 5420	3
~~History Elective~~	~~3~~	IS&T Elective	3
Free Elective	3	Free Electives	6
~~Fine Art, Social Science, or Humanities Elective[3]~~	~~3~~		
	15		15
Total Credits: 120			

A grade of "C" or better is required in the following courses for graduation; BUS 1110, BUS 1210, BUS 1810, BUS 5980, ECON 1100, ECON 1200, ERP 2110, FINANCE 2150, ~~BUS 1110 , BUS 1210 , BUS 1810 , BUS 5980 , ECON 1100 , ECON 1200 , ERP 2110 , FINANCE 2150 ,~~ MKT 3110, IS&T 1551, IS&T 1552, IS&T 1750, IS&T 3333, IS&T 3343, IS&T 3420, IS&T 3423, IS&T 4444, ~~IS&T 1561, IS&T 1562 , IS&T 1750 , IS&T 3131 , IS&T 3333 , IS&T 3343 , IS&T 3420 , IS&T 3423, IS&T 4641,~~ IS&T 4654, IS&T 5420, IS&T 5520, IS&T 5725 and all IS&T Electives (can include BUS 5730, BUS 5910, COMP SCI 4700, COMP SCI 5601, or any IS&T or ERP designated course at the 3000-level or above). ~~IS&T Electives.~~

1 Mathematical Science is defined as any MATH, STAT, COMP SCI or IS&T course not otherwise covered in the degree program. For definition of Science, refer to footnote 2.

2 Any course in the following areas: biology, chemistry, geology, geological engineering, physics.

3 Any course in the following areas not used for other degree requirements: art, economics, English, foreign language, history, literature, music, philosophy, political science, psychology, sociology, theater.

~~A grade of "C" or better is required in IS&T elective courses for graduation. Electives may be~~

- ~~any IS&T or ERP designated course at the 3000-level or above~~
- ~~BUS 5730%7CCode,~~
- ~~BUS 5910%7CCode~~
- ~~COMP SCI 4700%7CCode~~
- ~~or COMP SCI 5601%7CCode.~~

4 5

~~Mathematical Science is defined as any MATH, STAT, COMP SCI or IS&T course not otherwise covered in the degree program. For definition of Science, refer to footnote 2.~~ [6]

~~ENGLISH 1160 may be substituted for ENGLISH 1600~~

Justification for request
Revisions to IS&T Curriculum
Supporting Documents
Course Reviewer Comments

cassa (03/18/24 10:18 am): Rollback: One more thing... "Mathematical Science or Science" and "Mathematical Science or Science Elective" are not consistent between Freshman - Semester One and Sophomore - Semester One. Let's pick one and keep it consistent across all semesters and degrees. Thanks.

jpnfd (04/01/24 2:29 pm): Rollback: Department revisions

cassa (04/01/24 3:00 pm): Changes to help consistency between BIT UG degrees.
esdk3 (04/05/24 4:21 pm): corrected effective date to FS24 - es 4/5

Key: 75

Program Change Request

Date Submitted: 03/04/24 11:08 am

Viewing: MC ENG-BS : Mechanical Engineering BS

File: 86.57

Last approved: 06/07/23 8:43 am

Last edit: 03/13/24 1:10 pm

Changes proposed by: nkwtb

Catalog Pages Using this Program
Mechanical Engineering

Start Term
Fall 2024 ~~2023~~
Program Code
MC ENG-BS
Department
Mechanical & Aerospace Engineering
Title
Mechanical Engineering BS

Program Requirements and Description

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

Approval Path

1. 03/04/24 11:18 am David Bayless (djbkqf): Approved for RMECHENG Chair
2. 03/13/24 1:10 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/05/24 8:38 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Feb 24, 2014 by J. Keith Nisbett (nisbett)
2. Aug 6, 2014 by J. Keith Nisbett (nisbett)
3. Jul 21, 2015 by pantaleoa
4. May 3, 2018 by J. Keith Nisbett (nisbett)
5. Jun 14, 2019 by J. Keith Nisbett (nisbett)
6. Mar 3, 2020 by ershenb
7. Oct 8, 2020 by Crystal Wilson

(wilsoncry)
8. May 5, 2021 by J. Keith Nisbett (nisbett)
9. Oct 28, 2021 by J. Keith Nisbett (nisbett)
10. May 2, 2022 by J. Keith Nisbett (nisbett)
11. Jun 7, 2023 by J. Keith Nisbett (nisbett)

Bachelor of Science
Mechanical Engineering

The mechanical 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.

For the bachelor of science degree in mechanical engineering a minimum of 128 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. An average of at least two grade points per credit hour must be attained. An average of at least two grade points per credit hour must also be attained in all courses taken in mechanical engineering.

Each student's program of study must contain a minimum of 21 credit hours of course work in general education as follows:

1. ENGLISH 1120
2. HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200
3. ECON 1100 or ECON 1200
4. ENGLISH 1160 or ENGLISH 3560 or SP&M S 1185
5. A literature elective
6. A humanity or social science elective*
7. A humanity or social science elective* that has, as a prerequisite, a humanity or social science course already taken.

* Humanity and social science electives must be at least 3 credit hours of lecture designation, and also meet the requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
FR ENG 1100	1	ECON 1100 or 1200	3
CHEM 1310[a]	4	MECH ENG 1720	3
ENGLISH 1120	3	PHYSICS 1135[a]	4
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	MATH 1215[a]	4
CHEM 1319	1	Elective-Hum or Soc Sci[e]	3
MATH 1214 or 1211[a]	4		
	16		17
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MATH 2222[a]	4	MECH ENG 2761	2
CIV ENG 2200[a]	3	MECH ENG 2519[a]	3

PHYSICS 2135[a]	4	MECH ENG 2360[a]	3
MECH ENG 2653	3	MATH 3304[a]	3
MECH ENG 1761	1	MET ENG 2110[a]	3
		Programming Elective[a, b]	3
	15		17

Junior Year

First Semester	Credits	Second Semester	Credits
MECH ENG 3313	3	MECH ENG 3411[a]	3
MECH ENG 3521	3	MECH ENG 3131	3
ELEC ENG 2800	3	MECH ENG 4840	2
CIV ENG 2210[a]	3	Elective-Communications[c]	3
CIV ENG 2211	1	MECH ENG 3708	3
Elective-Advanced Math/Stat[d]	3	MECH ENG 3525	3
	16		17

Senior Year

First Semester	Credits	Second Semester	Credits
MECH ENG 4842	2	ENG MGT 1100	1
MECH ENG 4479	3	ENG MGT 1210	2
MECH ENG technical elective[f]	3	MECH ENG 4761	3
Literature elective[e]	3	MECH ENG 4480	1
Technical elective[g]	3	MECH ENG 5000-level technical elective[f]	3
Elective-Advanced Hum or Soc Sci[e]	3	Breadth elective[h]	3
	17		13
Total Credits: 128			

a

A grade of "C" or better is required in CHEM 1310, MATH 1214 (or MATH 1211), MATH 1215, MATH 2222, MATH 3304, PHYSICS 1135, PHYSICS 2135, programming elective, MET ENG 2110, CIV ENG 2200, CIV ENG 2210, MECH ENG 2519, MECH ENG 2360, and MECH ENG 3411, both as prerequisite for follow-up courses in the curriculum and for graduation.

b

The programming elective consists of a lecture and lab combination, and may be selected from COMP SCI 1970/COMP SCI 1980, COMP SCI 1971/COMP SCI 1981, or COMP SCI 1972/COMP SCI 1982, or COMP SCI 1570/COMP SCI 1580. Note that COMP SCI 1570/COMP SCI 1580 requires one more credit hour than the other options.

c

This course must be selected from the following: ENGLISH 1160, ENGLISH 3560 or SP&M S 1185, or the complete four course sequence in Advanced ROTC (MIL ARMY 3250, MIL ARMY 3500, MIL ARMY 4250, and MIL ARMY 4500; or MIL AIR 3110, MIL AIR 3120, MIL AIR 4110 and MIL AIR 4120).

d

This course must be selected from the following: MATH 3108, STAT 3113, STAT 3115 or any 5000-level math or stat course approved by the student's advisor.

e

All electives must be approved by the student's advisor. Humanity and social science electives must be at least 3 credit hours of lecture designation, and also meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.

f

Six hours of technical electives, subject to approval by the student's advisor, must be in the department of mechanical and aerospace engineering. At least three of these technical elective hours must be at the 5000 level. This elective may not include co-op, special problems, or research credits, such as as 3002, 4000, or 4099. Honors students have special requirements for technical electives.

g

This elective must be a three credit hour course, subject to approval by the student's advisor, from any of the following areas: math, statistics, science, engineering, or computer science. The course must be at the 3000 or higher level, or have a prerequisite that is part of the required mechanical engineering curriculum. Exceptions to the course level may be approved by the student's advisor. The elective may not include co-op, special problems, or research credits, such as 3002, 4000, or 4099.

h

This elective consists of three credit hours, subject to approval by the student's advisor, and may be satisfied by any of the following: (1) A three credit hour course from any of the following areas: math, statistics, science, engineering, computer science, business, or IST. The course must be at the 3000 or higher level, or have a prerequisite that is part of the required mechanical engineering curriculum. Exceptions to the course level may be approved by the student's advisor; (2) Any three credit hour course in the list of approved courses for the global studies minor; or (3) Any combination of three credit hours from co-op (3002), special problems (3000, 4000, or 5000), or research (4099).

i

All mechanical engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade on this examination is not required to earn a B.S. degree. However, it is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process as described in assessment requirements found elsewhere in this

catalog.

Energy Conversion Emphasis Area for Mechanical Engineering

Students desiring to obtain a bachelor of science degree in mechanical engineering with an emphasis area in energy conversion must satisfy all the requirements of the bachelor of science degree in mechanical engineering, with the additional stipulation that four courses must be taken as follows:

a. Two courses from the following list:		6
MECH ENG 5527	Combustion Processes	3
or AERO ENG 5527	Combustion Processes	
MECH ENG 5533	Internal Combustion Engines	3
MECH ENG 5566	Solar Energy Technology	3
MECH ENG 5567	Heat Pump And Refrigeration Systems	3
MECH ENG 5571	Environmental Controls	3
MECH ENG 5575	Mechanical Systems For Environmental Control	3
AERO ENG 5169	Introduction to Hypersonic Flow	3
AERO ENG 5535	Aerospace Propulsion Systems	3
b. One course from the following list:		3
MECH ENG 5519	Advanced Thermodynamics	3
or AERO ENG 5519	Advanced Thermodynamics	
MECH ENG 5525	Intermediate Heat Transfer	3
or AERO ENG 5525	Intermediate Heat Transfer	
MECH ENG 5131	Intermediate Thermofluid Mechanics	3
or AERO ENG 5131	Intermediate Thermofluid Mechanics	
MECH ENG 5139	Computational Fluid Dynamics	3
or AERO ENG 5139	Computational Fluid Dynamics	
c. One additional course from either list “a” or list “b”, or from the following list:		3
ECON 4540	Energy Economics	3
ELEC ENG 5150	Photovoltaic Systems Engineering	3
ENV ENG 5660	Introduction To Air Pollution	3
NUC ENG 4257	Two-phase Flow in Energy Systems - I	3

Note: By using the breadth elective and technical electives to satisfy the above requirements, this emphasis area requires the same total number of credit hours as the BSME degree. A change of major form should be submitted to designate the energy conversion emphasis area.

Manufacturing Processes Emphasis Area for Mechanical Engineering

Students desiring to obtain a bachelor of science in mechanical engineering with an emphasis area in manufacturing processes must satisfy all requirements of the bachelor of science in mechanical engineering with the additional stipulation that four courses must be taken as follows:

a. The following course:		3
MECH ENG 3653	Manufacturing	3
b. Three of the following courses:		3
MECH ENG 3001	Special Topics	3
MECH ENG 5282	Introduction to Composite Materials & Structures	3
MECH ENG 5449	Robotic Manipulators and Mechanisms	3
~~MECH ENG 5606~~	~~Material Processing By High-Pressure Water Jet~~	~~3~~
MECH ENG 5479	Course MECH ENG 5479 Not Found	
MECH ENG 5653	Computer Numerical Control of Manufacturing Processes	3
MECH ENG 5655	Manufacturing Equipment Automation	3
MECH ENG 5656	Design For Manufacture	3

~~MECH ENG 5702~~	~~Course MECH ENG 5702 Not Found~~	
~~d. One course from the following list:~~		~~3~~
MECH ENG 5708	Rapid Product Design And Optimization	3
~~MECH ENG 5758~~	~~Course MECH ENG 5758 Not Found~~	
~~e. The Math/Stat elective must be one of the following:~~		~~3~~
MECH ENG 5763	Computer Aided Design: Theory and Practice	3
c. The Math/Stat elective must be one of the following:		3
STAT 3113	Applied Engineering Statistics	3
STAT 3115	Engineering Statistics	3

A suggested sequence for the junior and senior years is given below. Note that by using the breadth elective and technical electives to satisfy the above requirements, this emphasis area requires the same total number of credit hours as the BSME degree. A change of major form should be submitted to designate the manufacturing processes emphasis area.

Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MECH ENG 3313	3	MECH ENG 3411[a]	3
ELEC ENG 2800	3	MECH ENG 3131	3
MECH ENG 3521	3	MECH ENG 3525	3
CIV ENG 2210[a]	3	MECH ENG 4840	2
CIV ENG 2211	1	MECH ENG 3653	3
STAT 3113 or 3115	3	Elective-Communications[c]	3
	16		17
Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MECH ENG 4842	2	ENG MGT 1100	1
MECH ENG 4479	3	ENG MGT 1210	2
MECH ENG 3708	3	MECH ENG 4761	3
Manufacturing Technical Elective[e]	3	MECH ENG 4480	1
Manufacturing Technical Elective[e]	3	Manufacturing Technical Elective[e]	3
Elective Literature[d]	3	Electives-Hum or Soc Sci[d]	3
	17		13
Total Credits: 63			

a

A grade of "C" or better is required in CHEM 1310, MATH 1214 (or MATH 1211), MATH 1215, MATH 2222, MATH 3304, PHYSICS 1135, PHYSICS 2135, programming elective, MET ENG 2110, CIV ENG 2200, CIV ENG 2210, MECH ENG 2519, MECH ENG 2360 and MECH ENG 3411, both as prerequisite for follow-up courses in the curriculum and for graduation.

b

The programming elective consists of a lecture and lab combination, and may be selected from COMP SCI 1970/COMP SCI 1980, COMP SCI 1971/COMP SCI 1981, COMP SCI 1972/COMP SCI 1982, or COMP SCI 1570/COMP SCI 1580. Note that COMP SCI 1570/COMP SCI 1580 requires one more credit hour than the other options.

c

This course must be selected from the following: ENGLISH 1160, ENGLISH 3560 or SP&M S 1185, or the complete four course sequence in Advanced ROTC (MIL ARMY 3250, MIL ARMY 3500, MIL ARMY 4250, and MIL ARMY 4500; or MIL AIR 3110, MIL AIR 3120, MIL AIR 4110 and MIL AIR 4120).

d

All electives must be approved by the student's advisor. Humanity and social science electives must be at least 3 credit hours of lecture designation, and also meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.

e

The nine hours of manufacturing technical elective must be selected as follows:
One course from the following manufacturing/automation courses: MECH ENG 5653, MECH ENG 5655, MECH ENG 5449, MECH ENG 5606.
One of the following design courses: MECH ENG 5763, MECH ENG 5656, MECH ENG 5702.
One course from the following list: MECH ENG 5708, MECH ENG 5758.

f

All mechanical engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade on this examination is not required to earn a B.S. degree, however, it is

the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process as described in Assessment Requirements found elsewhere in this catalog.

Mechanical Design and Analysis Emphasis Area

Students desiring to obtain a bachelor of science in mechanical engineering with an emphasis area in mechanical design and analysis must satisfy all requirements of the bachelor of science in mechanical engineering, with the additional stipulation that four courses must be taken as follows:

a. One design course from the following list:		3
MECH ENG 5709	Machine Design II	3
MECH ENG 5702	Course MECH ENG 5702 Not Found	3
MECH ENG 5704	Compliant Mechanism Design	3
MECH ENG 5708	Rapid Product Design And Optimization	3
MECH ENG 5715	Concurrent Engineering	3
MECH ENG 5656	Design For Manufacture	3
MECH ENG 5757	Integrated Product And Process Design	3
MECH ENG 5760	Probabilistic Engineering Design	3
MECH ENG 5763	Computer Aided Design: Theory and Practice	3
MECH ENG 5761	Engineering Design Methodology	3
b. One analysis course from the following list:		3
MECH ENG 5307	Vibrations I	3
MECH ENG 5211	Introduction To Continuum Mechanics	3
MECH ENG 5212	Introduction to Finite Element Analysis	3
MECH ENG 5234	Stability of Engineering Structures	3
MECH ENG 5236	Fracture Mechanics	3
MECH ENG 5313	Intermediate Dynamics Of Mechanical And Aerospace Systems	3
MECH ENG 5222	Course MECH ENG 5222 Not Found	3
MECH ENG 5238	Fatigue Analysis	3
MECH ENG 5449	Robotic Manipulators and Mechanisms	3
MECH ENG 5478	Mechatronics	3
c. Two additional courses from either of the previous lists.		6

Note that by using the breadth elective and technical electives to satisfy the above requirements, this emphasis area requires the same total number of credit hours as the BSME degree A change of major form should be submitted to designate the mechanical design and analysis emphasis area.

Systems Integration Emphasis Area

The Systems Integration emphasis area is required and available only for students pursuing a bachelor of science in mechanical engineering in the cooperative program delivered at Missouri State University. This emphasis area includes all requirements of the bachelor of science in mechanical engineering, except for the substitutions stipulated below.

The following requirements in the mechanical engineering curriculum are removed (16 credit hours):		
ELEC ENG 2800	Electrical Circuits	3
ENG MGT 1100	Practical Concepts for Technical Managers	1
Elective-Advanced Math/Stat		3
MECH ENG 5000-level technical elective		3
Technical elective		3
Breadth elective		3
The following requirements are added (16 credit hours):		
ELEC ENG 2100	Circuits I	3
ELEC ENG 2101	Circuit Analysis Laboratory I	1

ELEC ENG 2120	Circuits II	3
Systems Management elective. One of the following:		
MECH ENG 5715	Concurrent Engineering	3
MECH ENG 5757	Integrated Product And Process Design	3
MECH ENG 5758	Course MECH ENG 5758 Not Found	3
ENG MGT 3320	Introduction to Project Management	3
ENG MGT 4710	Quality	3
Systems Integration technical elective. One of the following:		3
MECH ENG 5307	Vibrations I	3
MECH ENG 5478	Mechatronics	3
MECH ENG 5481	Mechanical And Aerospace Control Systems	3
MECH ENG 5533	Internal Combustion Engines	3
MECH ENG 5571	Environmental Controls	3
MECH ENG 5575	Mechanical Systems For Environmental Control	3
MECH ENG 5656	Design For Manufacture	3
MECH ENG 5704	Compliant Mechanism Design	3
MECH ENG 5708	Rapid Product Design And Optimization	3
MECH ENG 5709	Machine Design II	3
MECH ENG 5715	Concurrent Engineering	3
MECH ENG 5757	Integrated Product And Process Design	3
MECH ENG 5760	Probabilistic Engineering Design	3
MECH ENG 5763	Computer Aided Design: Theory and Practice	3
One of the following:		
STAT 3113	Applied Engineering Statistics	3
STAT 3115	Engineering Statistics	3
STAT 3117	Introduction To Probability And Statistics	3

All of the substitutions for this emphasis area appear in the junior and senior years. A suggested sequence for the junior and senior years is given below.

Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MECH ENG 3313	3	MECH ENG 3411[a]	3
MECH ENG 3521	3	MECH ENG 3131	3
ELEC ENG 2100	3	MECH ENG 3525	3
ELEC ENG 2101	1	MECH ENG 3708	3
CIV ENG 2210[a]	3	MECH ENG 4840	2
CIV ENG 2211	1	ELEC ENG 2120	3
STAT 3113, or 3115, or 3117	3		
	17		17
Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MECH ENG 4842	2	MECH ENG 4761	3
MECH ENG 4479	3	Systems Integration technical elective[f]	3
MECH ENG 4480	1	Systems Management elective[g]	3
MECH ENG technical elective[e]	3	Literature elective[d]	3
Elective - Communications[c]	3	Elective - Advanced Hum or Soc Sci[d]	3
ENG MGT 1210	2		

	14	15
Total Credits: 63		

a

A grade of "C" or better is required in CHEM 1310, MATH 1214 (or MATH 1211), MATH 1215, MATH 2222, MATH 3304, PHYSICS 1135, PHYSICS 2135, programming elective, MET ENG 2110, CIV ENG 2200, CIV ENG 2210, MECH ENG 2519, MECH ENG 2360 and MECH ENG 3411, both as prerequisite for follow-up courses in the curriculum and for graduation.

b

The programming elective consists of a lecture and lab combination, and may be selected from COMP SCI 1970/COMP SCI 1980, COMP SCI 1971/COMP SCI 1981, or COMP SCI 1972/COMP SCI 1982, or COMP SCI 1570/COMP SCI 1580. Note that COMP SCI 1570/COMP SCI 1580 requires one more credit hour than the other options.

c

This course must be selected from the following: ENGLISH 1160, ENGLISH 3560 or SP&M S 1185, or the complete four course sequence in Advanced ROTC (MIL ARMY 3250, MIL ARMY 3500, MIL ARMY 4250, and MIL ARMY 4500; or MIL AIR 3110, MIL AIR 3120, MIL AIR 4110 and MIL AIR 4120).

d

All electives must be approved by the student's advisor.

Humanity and Social Science electives must be at least 3 credit hours of lecture designation, and also meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.

e

The mechanical engineering technical elective is subject to approval by the student's advisor, and must be in the department of mechanical and aerospace engineering. This elective may not include co-op, special problems, or research credits, such as 3002, 4000, or 4099. Honors students have special requirements for technical electives.

f

The systems integration technical elective must be selected from the following list: MECH ENG 5307, MECH ENG 5478, MECH ENG 5481, MECH ENG 5533, MECH ENG 5571, MECH ENG 5575, MECH ENG 5656, MECH ENG 5704, MECH ENG 5708, MECH ENG 5709, MECH ENG 5715, MECH ENG 5757, MECH ENG 5760, MECH ENG 5763.

g

The systems management elective must be selected from the following list: MECH ENG 5715, MECH ENG 5757, MECH ENG 5758, ENG MGT 3320, ENG MGT 4710.

h

All mechanical engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade on this examination is not required to earn a B.S. degree. However, it is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process as described in assessment requirements found elsewhere in this catalog.

Justification for request

We are updating the current list of electives for BS ME in the "Manufacturing Processes" emphasis area. Courses ME 5606, ME 5702, ME 5758 are dropped, while ME 5479-Machine Learning for Manufacturing Automation and ME 3001 – Additive Manufacturing Processes are added to the list of electives. The courses that are dropped were not offered by the department for a long time, giving students a few choices to pick courses. The updated list of courses provides the students a) with the skillset required to be successful in the manufacturing industry and b) a wide range of courses to choose from, which we plan to offer regularly.

Supporting Documents

Course Reviewer Comments

jpnfd (03/12/24 9:57 am): Email from Dr. Raper 3/8/24 states,"these changes would not require any outside activity, or notification to the System or state. You are changing and or eliminating from a long list and adding back. It would not fundamentally change the emphasis area."

jpnfd (03/13/24 10:47 am): Per email from department 3/12/24: Manufacturing Processes Emphasis Area: ME 5001 replaced with ME 5474(new course.) We don't offer any other ME 3001 Special topics course, so that rules out the option for students to enroll in another ME 3001 course besides ME 3001: Additive Manufacturing Processes.

jpnfd (03/13/24 1:10 pm): Updated term to Fall 2024.

Key: 86

Program Change Request

Date Submitted: 03/29/24 1:05 pm

Viewing: MT ENG-BS : Metallurgical Engineering BS

File: 90.40

Last approved: 04/06/22 12:32 pm

Last edit: 04/05/24 3:18 pm

Changes proposed by: lipked

Catalog Pages Using this Program
Metallurgical Engineering

Start Term
Fall 2024 ~~2022~~
Program Code
MT ENG-BS
Department
Materials Science & Engineering
Title
Metallurgical Engineering BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/29/24 8:07 pm Michael Moats (moatsm): Approved for RMATSENG Chair
2. 04/05/24 3:19 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/12/24 8:31 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Oct 8, 2013 by Lahne Black (lahne)
2. Apr 28, 2014 by Lahne Black (lahne)
3. Aug 14, 2014 by Lahne Black (lahne)
4. Aug 20, 2014 by pantaleoa
5. Aug 20, 2014 by pantaleoa
6. Aug 20, 2014 by pantaleoa
7. Jul 21, 2015 by pantaleoa
8. Mar 7, 2016 by F. Scott Miller (smiller)
9. Mar 27, 2017 by F. Scott Miller (smiller)

10. Jun 28, 2017 by F. Scott Miller (smiller)
11. Mar 3, 2020 by ershenb
12. Sep 15, 2020 by Crystal Wilson (wilsoncry)
13. Apr 6, 2022 by F. Scott Miller (smiller)

Bachelor of Science
Metallurgical Engineering

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.

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 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.
2. Of the remaining hours, six credit hours must be taken in humanities or social sciences. 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**
FR ENG 1100	1	MET ENG 2110	3
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	MATH 1215 or 1221	4
MATH 1214 or 1211	4	PHYSICS 1135	4
ENGLISH 1120	3	MECH ENG 1720	3
Hum/Soc Sci Elective[1]	3		
	16		17
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MET ENG 3130	3	MET ENG 3420	3
MET ENG 2125	2	MET ENG 3425	1
CER ENG 3230	3	PHYSICS 2135	4
MATH 2222	4	CIV ENG 2210	3
CIV ENG 2200	3	Hum/Soc Sci Elective[1]	3
		Communication Elective[1]	3
	15		17
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MET ENG 3320	3	MET ENG 3220	3
MET ENG 3120	3	MET ENG 3225	1
MET ENG 3125	2	CER ENG 3410	3
MATH 3304[2]	3	Out of Department Technical Elective[3]	3
Out of Program Technical Elective	3	Statistics Course[2]	3
Hum/Soc Sci Elective[1]	3	Hum/Soc Sci Elective[1]	3

	17		16
Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MET ENG 4096	3	MET ENG 4097	3
MET ENG 4350	3	Met Technical Elective[5]	3
MET ENG 4420	3	Met Technical Elective[5]	3
MET ENG 4637	3	Free Elective[6]	3
Steel Elective[4]	3	Hum/Soc Sci Elective[1]	3
	15		15
Total Credits: 128			

1 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)

2 All metallurgical engineering students must take MATH 3304 and one statistics course (STAT 3113 or STAT 3115)

3 CHEM ENG 5320, CHEM 2210 or CHEM 3310 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 5236 or MECH ENG 5238 or MECH ENG 5282, MIN ENG 2412, PHYSICS 2305 or PHYSICS 2311, STAT 5120 or STAT 5346 or STAT 5353.

4 Steel Elective - Steelmaking (MET ENG 4450) or Steels And Their Treatment (MET ENG 4320)

5 Technical Electives (MET ENG or approved listing)

6 Free Electives (3 hours)-algebra, trigonometry, basic ROTC, and courses considered remedial excluded

Justification for request

Removal of Fall 2024 deactivated classes (MECH ENG 5229 and CHEM 3410) from footnote 3.

Supporting Documents

Course Reviewer Comments

esdk3 (04/05/24 3:18 pm): updated Chem 2310 to 3310 (it changed numbers); and updated effective date to FS 24 - es 4/5

Key: 90

Program Change Request

Date Submitted: 04/16/24 10:50 am

Viewing: MUL&DIV-MI : Multiculture & Diversity Minor

File: 102.23

Last approved: 03/27/24 9:44 am

Last edit: 04/16/24 10:50 am

Changes proposed by: burnsde

Catalog Pages Using this Program
Multiculturalism & Diversity
Psychological Science

Start Term
Fall 2024
Program Code
MUL&DIV-MI
Department
Arts, Languages, & Philosophy
Title
Multiculture & Diversity Minor

Program Requirements and Description

In Workflow

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

Approval Path

1. 04/16/24 12:24 pm Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
2. 04/18/24 9:35 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/18/24 10:56 am Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Apr 28, 2014 by Irina Ivliyeva (ivliyeva)
2. May 7, 2014 by Lahne Black (lahne)
3. Jun 11, 2014 by Lahne Black (lahne)
4. Jun 11, 2014 by pantaleoa
5. Jun 11, 2014 by Lahne Black (lahne)
6. Jun 19, 2015 by Denise Sharp (denises)
7. Jul 21, 2015 by pantaleoa
8. Jun 27, 2016 by

Petra Dewitt (dewittp)
9. Mar 27, 2024 by Evie Sherlock (esdk3)

Multiculturalism & Diversity Minor

The Multiculturalism and Diversity Minor prepares students to function more effectively in a global society as well as enhances Missouri S&T graduates' employment options by providing knowledge, skills, and strategies for appreciating and understanding diverse cultural practices.

The minor requires 15 hours in a minimum of 3 of 4 humanities and social sciences (HSS) departments: the departments of arts, languages and philosophy; English and technical communication; history and political science; and psychological science. The academic home for this minor will be the arts, languages and philosophy department. Courses offered by these departments that can be included in the minor are listed below.

Arts, Languages & Philosophy:	
One language course at the third semester or above in a foreign language (German, Spanish, French, or Russian) *	
PHILOS 4340	From Activism to Zoos: Issues in Social Ethics
RUSSIAN 4360	Russian Civilization
SP&M S 3235	Intercultural Communication
English and Technical Communication:	
ENGLISH 1231	World Literature I: From The Beginnings To The Renaissance
~~ENGLISH 3228~~	~~Course ENGLISH 3228 Not Found~~
History and Political Science:	
HISTORY 3280	European Migrations and Nationalism Formation
HISTORY 3660	Modern East Asia
HISTORY 3665	History of Japan
POL SCI 2500	International Relations
POL SCI 4510	The Politics of the Global South
Psychology:	
PSYCH 4993	Psychology of Gender
PSYCH 4992	Cross-Cultural Psychology

* Language Courses at the 3rd Semester or above that qualify for the minor:	
FRENCH 1180	Intermediate French
FRENCH 2110	Basic French Conversation
FRENCH 2170	Masterpieces Of French Literature
FRENCH 2180	Basic French Composition
FRENCH 4311	Advanced French Conversation
FRENCH 4320	French and Francophone Cinema
~~FRENCH 4360~~	~~Course FRENCH 4360 Not Found~~
~~FRENCH 4370~~	~~Course FRENCH 4370 Not Found~~
~~FRENCH 4375~~	~~Course FRENCH 4375 Not Found~~
GERMAN 1180	Classical And Modern German Readings
GERMAN 2110	Basic German Conversation
GERMAN 2170	Masterpieces Of German Literature
RUSSIAN 1180	Readings In Science And Literature
RUSSIAN 2110	Basic Russian Conversation
RUSSIAN 2170	Masterpieces Of Russian Literature

RUSSIAN 4320	Russian Phonetics and Intonation
~~RUSSIAN 4330~~	~~Course RUSSIAN 4330 Not Found~~
RUSSIAN 4360	Russian Civilization
RUSSIAN 4370	Survey Of Russian Literature I (Early Period)
~~RUSSIAN 4375~~	~~Course RUSSIAN 4375 Not Found~~
SPANISH 1180	Intermediate Spanish
SPANISH 2110	Basic Spanish Conversation
SPANISH 2160	Hispanic Culture
SPANISH 2170	Masterpieces Of Hispanic Literature
SPANISH 2180	Intermediate Spanish Composition
SPANISH 4311	Advanced Spanish Conversation
~~SPANISH 4377~~	~~Course SPANISH 4377 Not Found~~
SPANISH 4302	Phonetics and Phonology of Spanish

Justification for request

Removing courses that no longer exist

Supporting Documents

Course Reviewer Comments

Key: 102

Program Change Request

New Program Proposal

Date Submitted: 03/15/24 12:58 pm

Viewing: PROPOSED : Digital Engineering - CT

File: 411

Last edit: 04/12/24 12:46 pm

Changes proposed by: dagli

Start Term
Fall 2024
Program Code
PROPOSED
Department
Engineering Management and Systems Engineering
Title
Digital Engineering - 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

Approval Path

1. 02/17/24 2:20 pm David Enke (enke): Approved for RENGMNGT Chair
2. 02/19/24 8:24 am Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 02/19/24 12:58 pm David Enke (enke): Rollback to Initiator
4. 02/19/24 1:23 pm David Enke (enke): Rollback to Initiator
5. 02/19/24 2:31 pm David Enke (enke): Approved for RENGMNGT Chair
6. 02/20/24 10:57 am Jennifer Pohlsander (jpnfd): Rollback to Initiator
7. 03/15/24 1:02 pm David Enke (enke): Approved for RENGMNGT Chair
8. 04/12/24 12:46 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
9. 04/16/24 10:42 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
10. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Digital Engineering

Recent advances in technology demands and the increased level of interconnectivity achieved through Internet and broadband communication technology is leading to systems that are increasingly complex. To manage this complexity, computational modeling and data resources have become nearly ubiquitous in systems engineering, driving the profession from a document-centric paradigm to a model-centric one. Model based systems engineering provides the means to construct models that capture system structure, behavior, and requirements and maintain consistency of these models automatically between collaborating engineers. These models can then be used in tandem with engineering and mathematics tools to quickly gain insight into the overall system performance over the entire lifecycle before a system component is ever made.

This graduate certificate program provides practicing engineers the opportunity to develop the necessary skills in the use of current modeling techniques to develop and simulate complex, multi-disciplinary engineering systems. In addition, engineers will learn methods to automate data acquisition for system development, establish rules for reusability of model resources, acquire necessary skills for simulating the designed systems, and use digital engineering to build digital twins. As complex system modeling and simulation are primary components of digital engineering, mission engineering is possible through digital engineering.

SYS ENG 6239	Smart Engineering System Design	3
SYS ENG 6321	Modeling Complex Systems	3
SYS ENG 6542	Model Based Systems Engineering	3
SYS ENG 6543	Digital Engineering	3

Program Requirements

This is graduate certificate for students with a BS in engineering or basic science. It is open for on campus and distance students. There is no GRE requirement. Students are required to complete four courses of the certificate with 3.00 GPA to successfully complete the graduate certificate. The courses taken for the graduate certificate will count toward their System Engineering MS degree if they apply for the Systems Engineering MS program.

Justification for request

The EMSE Department is proposing a new Digital Engineering Graduate Certificate to be in line with current trends in systems engineering practice, as led by national labs and industry, which now use digital engineering to build digital twins of designed systems. The International Council on Systems Engineering (INCOSE) states that “Digital Engineering is crosscutting: It includes all engineering disciplines using well-formed models to execute their process and communicate a system’s design.’’ INCOSE also states that “Model-Based SE (MBSE) is one of the core elements of Digital Engineering. In MBSE and Digital Engineering, a Digital System Model is a digital representation of a system. It integrates the authoritative MBSE and other Digital Engineering technical data and associative artifacts, defining all aspects of the system throughout the system life cycle. The Digital System Model is composed of a federated set of models that serve as an authoritative source of truth for systems design.” The Systems Engineering Graduate program currently has four integrated courses that cover the critical topics within the area of digital engineering and allows for the creation of this new certificate. Furthermore, there is already demand for this certificate and its associated courses; the EMSE department has received requests from industry to have a certificate in the area of digital engineering.

Supporting Documents

DigitalEngineeringGraduateCertificate.docx

Digital Engineering Graduate Cert Letter Enke Feb 17, 2024 .pdf

EMSE-Digital Eng-GCT.pdf

Course Reviewer Comments

enke (02/17/24 2:20 pm): I approve; see attached letter. David Enke.

jpnfd (02/19/24 8:24 am): Rollback: Rollback pending completion of the graduate certificate approval process. Also, please list the program description as in the example below with the courses in a grid.

enke (02/19/24 12:58 pm): Update of requirements and descriptions.

enke (02/19/24 12:58 pm): Rollback: Sending back to you as requested, after minor edits.

enke (02/19/24 1:23 pm): Rollback: The last class 6543 did not show up in the list provided like the other three did. Can you correct this - I am not sure how. for 6543, it still provides the course description.

jpnfd (02/19/24 3:16 pm): SYS ENG 6543 Digital Engineering (LEC 3.0) will be updated in the course list after CL syncing issue is resolved.

jpnfd (02/20/24 10:57 am): Rollback: Rollback pending completion of the graduate certificate approval process and provost approval. When this is resubmitted after provost approval, please also submit the Model Based Systems Eng CT for deactivation.
esdk3 (04/05/24 3:20 pm): updated/added "CT" -es 4/5
jpnfd (04/12/24 12:46 pm): Added title above description.

Key: 411

Program Change Request

New Program Proposal

Date Submitted: 03/19/24 9:05 am

Viewing: PROPOSED : Russian and Eurasian Studies CTU

File: 412

Last edit: 04/16/24 7:54 am

Changes proposed by: cht3m

Start Term
Fall 2024
Program Code
PROPOSED
Department
Arts, Languages, & Philosophy
Title
Russian and Eurasian Studies CTU

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/11/24 12:42 pm Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
2. 03/14/24 12:02 pm Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 03/19/24 9:51 am Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
4. 04/16/24 8:09 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
5. 04/16/24 8:13 am Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
6. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Russian and Eurasian Studies

This certificate is designed for majors in any field who wish to enhance their understanding of the peoples and cultures of Russia, Eastern Europe, and Central Asia. The College of Arts, Sciences, and Education offers this certificate through the collaboration of the Department of Arts, Languages, and Philosophy, and the Department of History and Political Science. Courses offered by these departments that are listed below. Courses from other departments may count if their subject matter has significant Russian or Eurasian content.

Admissions Requirements:

A student must meet Missouri S&T's regular undergraduate admission requirements.

Certificate Requirements:

Achieve at least a 2.75 grade point average in all certificate course work.

Students must apply for the certificate by notifying the Russian and Eurasian Studies faculty advisor at least one full semester prior to graduation.

Request a certificate from the Registrar's Office within two calendar years of completing the required certificate course work.

Certificate Requirements (12 Credit Hours)

Students must take 4 different courses including one required course and 3 additional elective courses. Courses must come from at least two different disciplines.

REQUIREMENTS: Must take ONE of the following (3 hours)

RUSSIAN 4360	Russian Civilization	3
HISTORY 2224	Making Of Modern Russia	3

Elective Courses: Must take 3 ADDITIONAL courses

RUSSIAN 2170	Masterpieces Of Russian Literature	3
RUSSIAN 3790	Scientific Russian	3
RUSSIAN 4330	Course RUSSIAN 4330 Not Found	3
RUSSIAN 4360	Russian Civilization	3
RUSSIAN 4370	Survey Of Russian Literature I (Early Period)	3
RUSSIAN 4375	Course RUSSIAN 4375 Not Found	3
HISTORY 2224	Making Of Modern Russia	3
HISTORY 3200	Course HISTORY 3200 Not Found	
HISTORY 3235	Foundations Of Contemporary Europe 1815-1914	3
HISTORY 3240	Contemporary Europe	3
HISTORY 3600	World History	3
HISTORY 3762	American Foreign Policy Since 1945	3

All students are encouraged to develop their Russian language skills to the highest possible level.

Other Program Information: This list of courses is not exhaustive. Other courses with significant Russia(n)-related content may be substituted for those listed above upon approval of the Russian and Eurasian Studies Advisor.

Justification for request

This certificate is designed for majors in any field who wish to enhance their understanding of the peoples and cultures of Russia, Eastern Europe, and Central Asia. The College of Arts, Sciences, and Education offers this certificate through the collaboration of the Department of Arts, Languages, and Philosophy, and the Department of History and Political Science. Courses offered by these departments that are listed below. Courses from other departments may count if their subject matter has significant Russian or Eurasian content.

Supporting Documents

2 Russian Studies Certificate Proposal_12_18_3.pdf

1- MDHEWD Russian Studies Certificate FORM.docx

MDHE Receipt Russian Eurasian New UGCT.pdf

Course Reviewer Comments

jpnfd (03/14/24 11:32 am): Added CTU (undergrad certificate) to title.

jpnfd (03/14/24 12:02 pm): Rollback: Rollback for administrative changes. Content needs to be formatted in course/text boxes consistent with DC form format. Also please reduce heading size in body of form. Email sent to dept on 3/14/24 for additional info.

jpnfd (04/12/24 8:14 am): Added title above description.

jpnfd (04/12/24 8:36 am): Removed attachment-not a supporting document.
jpnfd (04/15/24 11:03 am): Attached documentation from department.
jpnfd (04/15/24 11:18 am): Attached documentation from department.
jpnfd (04/16/24 7:54 am): Added History 2224, Russian 4370, and History 3200 to course list, per deprtment. Deleted duplicate course list table.

Key: 412

Program Change Request

Date Submitted: 03/18/24 3:00 pm

Viewing: Q ECON-MI : Quantitative Economics Minor

File: 399.10

Last approved: 06/08/23 3:03 pm

Last edit: 03/28/24 9:17 am

Changes proposed by: davismc

Catalog Pages Using this Program
Economics

Start Term
Fall 2024 ~~2023~~
Program Code
Q ECON-MI
Department
Economics
Title
Quantitative Economics Minor

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/21/24 2:25 pm Melody Lo (mlc2d): Approved for RECONOMI Chair
2. 04/05/24 2:46 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 3:26 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 7, 2023 by Melody Lo (mlc2d)
2. Jun 8, 2023 by Jennifer Pohlsander (jpnfd)

Quantitative Economics Minor

The Quantitative Economics minor aims to increase job prospects for students across the campus. This minor is designed to prepare business, engineering, or science students to become future business and industry professionals who can apply the core economics principles and quantitative methods to articulate and make policy recommendations aligned with the current and projected economic environment. The minor provides foundational knowledge of market structure, the global business environment, data analytics, and public policies necessary for strategic corporate and government decision-making.

The Quantitative Economics minor requires completing of a minimum of 17 to 18 hours of coursework with a grade of “C” or better. Required courses in the minor program include both Principles of Microeconomics (ECON 1100) and Macroeconomics (ECON 1200), Introduction to Econometrics (ECON 3300), one course between

Data Intelligence using Case Studies (ECON 5350) and Data-Driven Strategic Insights (ECON 5360), and two courses among Economic Analysis of Engineering Projects (ENG MGT 1210), ECON 2100, 2200, or any 3000 and above economic electives of the student's choices in consultation with the department's minor advisor.

ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3
ECON 3300	Introduction to Econometrics	3
Choose One of the Following Courses: [1]		
~~ECON 5350~~	~~Data Intelligence using Case Studies~~	~~3~~
ECON 5360	Data Driven Strategic Insights	3
ECON 5380	Course ECON 5380 Not Found	
Choose Two of the Following Courses:		
ENG MGT 1210	Economic Analysis of Engineering Projects	2
ECON 2100	Intermediate Microeconomic Theory	3
ECON 2200	Intermediate Macroeconomic Theory	3
ECON 3333	Computational Economics	3
ECON 3512	Mining Industry Economics	3
ECON 3880	Introduction to Sports Economics	3
~~ECON 4230~~	~~Course ECON 4230 Not Found~~	~~3~~
ECON 4383	Financial Economics	3
ECON 4430	Cost-Benefit Analysis	3
ECON 4440	Environmental And Natural Resource Economics	3
ECON 4538	Advanced Econometrics	3
ECON 4540	Energy Economics	3
ECON 4720	International Finance	3
ECON 5532	Advanced Mining Economics	3
ECON 5337	Financial Mathematics	3
Total Credits: 17 - 18		

1

Both data analytics courses can be counted as a total of six credit hours for this minor. When students choose to take both ECON 5350 and 5360, they must only choose one course from ENG MGT 1210, ECON 2100, 2200, or any other 3000-level and above economic electives to complete the minor.

Justification for request

Renumbering of 5350 to 5380.

Supporting Documents

Course Reviewer Comments

jpnfd (03/28/24 9:17 am): Removed 4320, per department, no longer taught.

Key: 399

Program Change Request

Date Submitted: 04/05/24 12:45 pm

Viewing: SCITEC-CTU : CTU ~~UCT~~ - Science, Technology, and Society

File: 375.16

Last approved: 01/29/24 3:22 pm

Last edit: 04/05/24 5:29 pm

Changes proposed by: sfogg

Catalog Pages Using this Program
History

Start Term
Fall 2024
Program Code
SCITEC-CTU
Department
History and Political Science
Title
CTU ~~UCT~~ - Science, Technology, and Society

Program Requirements and Description

In Workflow

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

Approval Path

1. 04/05/24 12:46 pm Shannon Fogg (sfogg): Approved for RHISTORY Chair
2. 04/05/24 2:53 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/05/24 5:29 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Mar 4, 2021 by Petra Dewitt (dewittp)
2. Aug 3, 2021 by Crystal Wilson (wilsoncry)
3. Jan 29, 2024 by Petra Dewitt (dewittp)

Science, Technology, and Society

The undergraduate certificate in Science, Technology, and Society (STS) is designed to provide students with background in the understanding of the field of science, technology, and society. Students who complete this certificate will understand more fully how integrated the perspectives of humanities and the social sciences are in

shaping the technological world. Students will learn the valuable quality of knowing how their work is shaped by, and in turn shapes, social values and contexts in an increasingly interconnected world.

REQUIREMENTS:

3 credit hours from		
HISTORY 2510	History of Technology	3
HISTORY 3530	History of Science	3
HISTORY 4580	Issues in Science, Technology and Society	3
or PHILOS 4580	Course PHILOS 4580 Not Found	
POL SCI 4320	The Politics of Innovation	3
9 additional credit hours from (as approved by certificate advisor)		
BIO SCI 1163	Biotechnology in Film	3
BIO SCI 2263	Ecology	3
BIO SCI 2372	Issues in Public Health	3
ECON 4540	Energy Economics	3
ECON 4820	Labor Economics	3
ENGLISH 2243	Science Fiction	3
ENG MGT 4330	Human Factors	3
or PSYCH 4710	Human Factors	
ENV ENG 5640	Environmental Law And Regulations	3
GEO ENG 1175	Geological Engineering in Popular Media	3
HISTORY 2510	History of Technology	3
HISTORY 3510	Twentieth Century Technology And Society	3
HISTORY 3530	History of Science	3
HISTORY 3443	The American Military Experience	3
HISTORY 4470	American Environmental History	3
HISTORY 4550	Architecture, Technology and Society; 1750 to Present	3
HISTORY 4551	Chicago: Architecture, Technology, Culture	3
IS&T 5885	Human-Computer Interaction and User Experience	3
PHILOS 3223	Bioethics	3
PHILOS 3225	Engineering Ethics	3
PHILOS 4320	Minds And Machines	3
PHILOS 4345	Philosophy Of Science	3
PHILOS 4350	Environmental Ethics	3
PHILOS 4665	Creating Future Cities	3
POL SCI 3300	Principles Of Public Policy	3
POL SCI 4320	The Politics of Innovation	3
POL SCI 4500	Geopolitics and International Security	3
PSYCH 4410	Neuroscience	3
PSYCH 4411	Sensation and Perception	3
PSYCH 4602	Organizational Psychology	3
PSYCH 4700	Industrial Psychology	3
PSYCH 4720	Psychology of Social Technology	3
TCH COM 3570	Writing in the Sciences	3
TCH COM 5610	History of Technical Communication	3

Justification for request

adding new courses taught by professors that were hired after the certificate was created. Course additions approved by department chairs.

Supporting Documents

Course Reviewer Comments

esdk3 (04/05/24 2:53 pm): changed "UCT" to CTU - es 4/5

dewittp (04/05/24 5:29 pm): Not sure why Philos 4580 does not show up, it is an existing course in the catalogue.

Key: 375

Program Change Request

Date Submitted: 03/20/24 10:16 am

Viewing: SYS EN-PHD : Systems Engineering PhD

File: 131.16

Last approved: 04/19/21 9:46 am

Last edit: 04/12/24 12:48 pm

Changes proposed by: enke

Catalog Pages Using this Program
Systems Engineering

Start Term
Fall 2024 ~~2021~~
Program Code
SYS EN-PHD
Department
Engineering Management and Systems Engineering
Title
Systems Engineering PhD

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

Approval Path

1. 03/20/24 10:52 am David Enke (enke): Approved for RENGMNGT Chair
2. 03/22/24 1:01 pm Evie Sherlock (esdk3): Rollback to RENGMNGT Chair for CCC Secretary
3. 03/22/24 1:59 pm David Enke (enke): Approved for RENGMNGT Chair
4. 04/12/24 12:48 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
5. 04/16/24 10:42 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
6. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2014 by pantaleoa
2. Mar 13, 2015 by pantaleoa
3. Jun 19, 2015 by Stephen Raper (sraper)
4. Jul 24, 2015 by pantaleoa
5. Apr 19, 2016 by

pantaleoa
6. Apr 19, 2016 by pantaleoa
7. Jun 18, 2018 by Sarah Johnson (johsarah)
8. Jun 14, 2019 by Sarah Johnson (johsarah)
9. Apr 19, 2021 by Crystal Wilson (wilsoncry)

A candidate for the Ph.D. in systems engineering must complete the equivalent of at least three years of full time work beyond the bachelor's degree. The content of all Ph.D. programs are individually structured by the student in consultation with and approved by the student's advisory committee. All requirements for the degree must normally be completed within an eight year period. At appropriate points in their program, Ph.D. students must pass both a Qualifying Exam and Comprehensive Exam. Off-campus students are expected to complete all requirements listed in the Missouri S&T Graduate Catalog under the section entitled Doctor of Philosophy Degree and follow all procedures listed under the Procedures for Ph.D. Candidates.

The total credit requirements for graduation are a minimum of 54 credit hours after the successful completion of M.S. degree in systems engineering. Actual courses taken will be determined by the candidate's committee and his/her plan of study. The student is expected to complete all requirements.

~~**For Off-Campus Students The qualifying exam must be taken on campus within the first 5 semesters of enrollment; the student will have at minimum one virtual conference per month with his/her research advisor; the student is expected to meet with thePh.D.committee on a regular basis with at least two meetings per semester; thePh.D.comprehensive exam must be taken on campus; the student has the option of conducting research that is beneficial to the student's professional work; and the defense of dissertation must take place oncampus.**~~**Major Requirements**

After B.S. degree in Engineering

Core Curriculum		24
SYS ENG 5101	System Engineering and Analysis	3
SYS ENG 6104	Systems Architecting	3
SYS ENG 6110	Optimization under Uncertainty	3
~~SYS ENG 6101~~	~~Advanced Research Methodology in Engineering Management~~	~~3~~
SYS ENG 6239	Smart Engineering System Design	3
SYS ENG 6321	Modeling Complex Systems	3
SYS ENG 6412	Mathematical Programming	3
SYS ENG 6542	Model Based Systems Engineering	3
SYS ENG 6543	Digital Engineering	3
Research		30
SYS ENG 6099	Research	1-15
Electives		36
Systems Eng Process Tools, Optimization & Statics - 12 credit hours		
Research Specialization Areas - 24 credit hours		

For Off-Campus Students

The qualifying exam must be taken ~~on campus~~ within the first 5 semesters of enrollment; the student will have at minimum one virtual conference per month with his/her research advisor; the ~~student is expected to meet with the~~ Ph.D. comprehensive exam is recommended to ~~must~~ be taken on campus; the student has the option of conducting research that is ~~is~~ beneficial to ~~to~~ the student's professional work; ~~and~~ the defense of dissertation is recommended to ~~must~~ take place on campus.

Requirements for Dissertation

Students will conduct original research demonstrated by journal or referred proceedings, publication under the supervision of a doctoral advisor, ~~and~~ communicate their findings, write a dissertation on research conducted, and provide satisfactory defense of their dissertation in a final oral examination. Students ~~will be required to sign up for one hour of SYS ENG 6099 under their research advisor. Students~~ are required to publish their work in approved journals and referred proceedings. A minimum of three articles is expected.

Qualifying Exam

The objective of the systems engineering Ph.D. qualifying exam is to test the knowledge and understanding of the graduate student on systems engineering fundamentals and the student's research capability. ~~capability.~~ It is expected that the graduate student has a clear understanding of the research issues in the student's area of interest, as well as ~~its implications in industrial applications primarily in~~ the ~~industrial domain the student is working,~~ possible impact of successful research contributions to systems engineering research and literature. For more information, contact the department graduate staff.

Comprehensive Exam

The student's advisory committee will administer the comprehensive examination after the student has completed seventy-five percent of the coursework for the Ph.D. program and one published refereed conference proceeding or journal paper. The examination is written and oral. Upon successful completion of the written examination, an additional oral exam might ~~the student will~~ be required ~~orally examined~~ by the advisory committee.

Dissertation

The dissertation, embodying the results of an original investigation, must be written upon a subject mutually agreed upon between the student and the advisor.

Research Areas

Research areas include, but are not limited to: ~~Research Areas~~ Cyber Physical Systems, Modeling and Simulation, Model Based Systems Engineering, ~~Engineering ,~~ System of Systems Architecting, Complex Adaptive Systems, Human System Integration, Infrastructure Systems.

Justification for request

Substituting a required core PhD course; SYS ENG 6543 for SYS ENG 6101. Cleaning up some of the requirements and wording.

Supporting Documents

Course Reviewer Comments

esdk3 (03/22/24 1:01 pm): Rollback: sent back per your request

enke (03/22/24 1:57 pm): Making additional edits that were not previously made.

jpnfd (04/12/24 12:48 pm): Updated term to Fall 2024.

Key: 131

Program Change Request

Date Submitted: 03/22/24 10:22 am

Viewing: SYS ENG-MS : Systems Engineering MS

File: 140.11

Last approved: 06/14/19 2:14 pm

Last edit: 04/05/24 2:47 pm

Changes proposed by: enke

Catalog Pages Using this Program
Systems Engineering

Start Term
Fall 2024 ~~2019~~
Program Code
SYS ENG-MS
Department
Engineering Management and Systems Engineering
Title
Systems Engineering MS

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

Approval Path

1. 03/22/24 10:23 am David Enke (enke): Approved for RENGMNGT Chair
2. 04/05/24 2:47 pm Evie Sherlock (esdk3): Approved for CCC Secretary
3. 04/12/24 8:31 am Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2014 by pantaleoa
2. Jul 21, 2014 by pantaleoa
3. Jun 19, 2015 by Stephen Raper (sraper)
4. Jul 24, 2015 by pantaleoa
5. Apr 19, 2016 by pantaleoa
6. May 16, 2016 by pantaleoa
7. Jun 14, 2019 by Sarah Johnson (johsarah)

The M.S. degree program is offered on the Rolla campus and several locations including the West County Continuing Education Center in ~~Missouri S&T Global –~~ St. Louis, and by distance education throughout the United States and selected international locations. Distance course lectures are archived upon completion of the lecture and all lectures are available to students through streaming video during the semester for review. These courses can be reached from anywhere at any time. It is feasible to obtain a Missouri S&T non-thesis M.S. degree regardless of your location.

The M.S. non-thesis program requires completion of at least 10 three-credit hour courses approved by the academic advisor. The M.S. with thesis option requires 36 credit hours including the thesis. All students are required to take the following:

CORE Courses

SYS ENG 5101	System Engineering and Analysis	3
SYS ENG 6102	Information Based Design	3
SYS ENG 6103	Systems Life Cycle Costing	3
SYS ENG 6104	Systems Architecting	3
SYS ENG 6196	Systems Engineering Capstone	3
SYS ENG 6542	Model Based Systems Engineering	3

Specialization Courses

Specialization courses provides students with the ability to address his/her technology needs in the context of the overall Systems Engineering program. These graduate courses can be selected from engineering or the physical science department as long as they are approved by the program director.

One of the graduate certificates may be substituted for a specialization track with the permission of the program director.

Justification for request

Updating the name of the St. Louis location.

Supporting Documents

Course Reviewer Comments

esdk3 (04/05/24 2:47 pm): updated effective date to Fall 24 - es 4/5/24

Key: 140

Program Change Request

Date Submitted: 03/26/24 9:27 am

Viewing: TCH CM-CTU : Technical Communication CTU

File: 337.2

Last approved: 06/13/19 10:06 am

Last edit: 03/29/24 11:33 am

Changes proposed by: kswenson

Catalog Pages Using this Program
English and Technical Communication

Start Term
Fall 2024 ~~2019~~
Program Code
TCH CM-CTU
Department
English and Technical Communication
Title
Technical Communication CTU

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/26/24 9:33 am Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 03/29/24 11:39 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/29/24 12:56 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 13, 2019 by ershenb

Certificate in Technical Writing

Admissions Requirements

A student must meet Missouri S&T regular undergraduate admission requirements.

Certificate Requirements

- A student must have completed at least 60 undergraduate college-level transferable credit hours, 42 of which must meet Missouri S&T's general education credit policy, https://ugs.mst.edu/media/administrative/ugs/documents/Missouri_ST_42GenEdCredit_Policy5.pdf.
- A student must have completed the following courses totaling 12 credit hours:

TCH COM 1600	Introduction to Technical Communication *	3
or ENGLISH 1600	Introduction to Technical Communication	
ENGLISH 3560	Technical Writing **	3
TCH COM 2560	Technical Marketing Communication	3
or ENGLISH 2560	Technical Marketing Communication	
One 4000- or 5000-level course with the TCH COM designation, excluding 5000 and 4080 ***		3

* This course should be taken first if possible.

** The junior-standing prerequisite will be waived for a certificate student who has already taken TCH COM 1600 or ENGLISH 1600.

*** The ENGLISH 2540/TCH COM 2540 prerequisite will be waived for certificate students.

- Must have achieved at least a 2.5 average in the course work taken for the certificate

Other Stipulations:

- A student pursuing the technical communication minor may count the same courses for the minor and the technical writing certificate.
- A student who already has a bachelor's degree from Missouri S&T may count relevant courses from that degree (e.g., TCH COM 1600) toward the technical writing certificate.
- The 12 credit hours of technical communication course work may not be counted toward the 60 credit hours of undergraduate college-level transferable course work.
- The certificate in technical writing is not available to students earning a bachelor's degree in English and Technical Communication.

Justification for request

Supporting Documents

Course Reviewer Comments

jpnfd (03/29/24 11:32 am): Updated format

jpnfd (03/29/24 11:33 am): Updated term to Fall 2024.

Key: 337

Program Change Request

Date Submitted: 03/26/24 9:29 am

Viewing: TCH COM-MI : Technical Communication Minor

File: 181.11

Last approved: 05/16/16 4:11 pm

Last edit: 03/29/24 11:31 am

Changes proposed by: kswenson

Catalog Pages Using this Program
English and Technical Communication

Start Term
Fall 2024 ~~08/15/2016~~
Program Code
TCH COM-MI
Department
English and Technical Communication
Title
Technical Communication Minor

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/26/24 9:33 am Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 03/29/24 11:32 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/29/24 12:56 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Apr 22, 2014 by Kristine Swenson (kswenson)
2. Jul 23, 2014 by Kristine Swenson (kswenson)
3. Aug 14, 2014 by pantaleoa
4. Jul 20, 2015 by pantaleoa
5. May 16, 2016 by pantaleoa

Minor in Technical Communication

To complete this minor students must take TCH COM 1600, TCH COM 2540 (or ENGLISH 2540), and TCH COM 2560 (or ENGLISH 2560) plus six additional hours elected from the 4000-level or above technical communication courses. The minor in technical communication is not available to students earning a bachelor's degree in English and Technical Communication.

Justification for request
Supporting Documents
Course Reviewer Comments
jpnfd (03/29/24 11:31 am): Updated term to Fall 2024.

Key: 181

Course Change Request

New Experimental Course Proposal

Date Submitted: 03/08/24 11:12 am

Viewing: **BIO SCI 5001.011 : Wildlife Conservation**

File: 5062

Last edit: 03/11/24 11:28 am

Changes proposed by: verbler

Requested Effective Change Date	Fall 2024
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	5001
Topic ID	011
Experimental Title	Wildlife Conservation
Experimental Abbreviated Course Title	Wildlife Conservation
Instructors	Robin Verble, Theodore Sumnicht

Experimental Catalog Description

The course explores the ecological knowledge needed for wildlife conservation, including how species behavior and ecology ultimately shape wildlife populations. Traditional wildlife management topics will be included, along with an added emphasis on ethological implications that affect biological diversity. In addition, human behavior and its impact on wildlife populations and diversity will be studied through hands-on experience, field observation, case studies, scientific literature, and assigned readings.

Prerequisites

Consent of instructor

Field Trip Statement

This course is being taught as part of a 3 week faculty-led South Africa study abroad

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. CAT entry
8. Registrar

Approval Path

1. 03/06/24 3:16 pm David Duvernell (duvernelld): Rollback to Initiator
2. 03/08/24 11:47 am David Duvernell (duvernelld): Approved for RBIOLSCI Chair
3. 03/11/24 11:34 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
4. 04/09/24 2:53 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair

program.

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

5. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for new course:

A new faculty-led South Africa study abroad program is being created in Biological Science and Environmental Science for Fall 2024. The courses for this program need to include topics relevant to the field sites, and no such courses currently exist in the catalog.

Semester(s) previously taught: None

Co-Listed Courses:

Course Reviewer Comments: **duvernelld (03/06/24 3:16 pm):** Rollback: Needs to run through bio undergraduate committee. Also, grammatical errors in description.

Key: 5062

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 03/08/24 11:14 am

Viewing: **BIO SCI 5001.012 : Natural Resource Ecology**

File: 5064

Last edit: 03/11/24 11:29 am

Changes proposed by: verbler

Requested Effective Change Date	Fall 2024
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	5001
Topic ID	012
Experimental Title	Natural Resource Ecology
Experimental Abbreviated Course Title	Natural Resource Ecology
Instructors	Robin Verble, Theodore Sumnicht

Experimental Catalog Description

This course introduces students to the ecological framework within which natural resources are extracted, utilized, and sustained with emphasis on South African environments. The course provides students a variety of hands-on and observational experiences in natural settings, including managed wildlife zones, community agricultural sites, wetlands, and national parks. Through projects, activities and lectures, students examine topics such as land use, water quality, environmental stewardship, and management agencies within the context of the natural world. Study of the natural world contextualizes resources through an understanding of biomes, ecological processes, energy flow, and biodiversity. A focus on issues surrounding man's interaction with the Earth is central in this course.

Prerequisites

Consent of instructor

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. CAT entry
8. Registrar

Approval Path

1. 03/08/24 11:46 am
   David Duvernell (duvernelld): Approved for RBIOLSCI Chair
2. 03/11/24 11:34 am
   Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/09/24 2:53 pm
   Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 04/18/24 3:47 pm
   Jennifer Pohlsander (jpnfd): Approved for Pending CCC

Field Trip Statement	This course is part of a faculty-led study abroad program in South Africa.				
Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3

Agenda post

Justification for new course:	No course of similar content that is appropriate for the site and topics currently exists in the curriculum.
Semester(s) previously taught	None
Co-Listed Courses:	

Course Reviewer Comments

Key: 5064

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 02/23/24 12:04 pm

Viewing: **BUS 5001.013 : Branding for Innovation**

File: 5059

Last edit: 03/29/24 11:19 am

Changes proposed by: cecq8z

Requested Effective Change Date	Fall 2024
Department	Business Administration
Discipline	Business (BUS)
Course Number	5001
Topic ID	013
Experimental Title	Branding for Innovation
Experimental Abbreviated Course Title	Branding for Innovation
Instructors	Sarah Stanley

Experimental Catalog Description

This course touches on branding on all fronts, including internal and external. It covers how firms sell their stories to employees, existing customers, potential customers, investors, and the community. Focusing primarily on startups, entrepreneurs, and tech-savvy firms, this class addresses core company values, fostering creativity & innovation, storytelling, and brand identity.

Prerequisites

Field Trip Statement

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

In Workflow

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

Approval Path

1. 02/24/24 8:58 am Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 03/29/24 11:19 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/29/24 11:48 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 04/18/24 3:47 pm Jennifer Pohlsander (jpnfd): Approved

for Pending CCC Agenda post

Justification for new course:

This course is intended to replace BUS 6622 International Marketing in the Entrepreneurship and Technological Innovation Graduate Certificate. We are running this as a 5001 to ensure it is available in the Fall.

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

Key: 5059

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 03/10/24 6:44 pm

Viewing: **GEO ENG 6001.007 : Advanced Mapping with Drones**

File: 5005

Last edit: 03/12/24 1:23 pm

Changes proposed by: jlmd9g

Requested Effective Change Date	Fall 2024
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geological Engineering (GEO ENG)
Course Number	6001
Topic ID	007
Experimental Title	Advanced Mapping with Drones
Experimental Abbreviated Course Title	Mapping with Drones
Instructors	Jeremy Maurer

Experimental Catalog Description

This experimental course will help students acquire the knowledge, skills, and experience needed to be able to start using Unmanned Aerial Systems (UAS) to perform mapping and the relevant software needed for processing imagery from drones. The course will start with an overview of the basic knowledge required for passing the FAA Part 107 Remote Pilots Knowledge Test for small UAS operators, including UAS mapping technology and its rules and regulations, airspace classification, and reading aeronautical charts. The principles of UAS data collection are explained along with hands-on practice in flight planning and execution, as well as processing collected imagery. Both flight and data processing experience will be central to the course. This 6000-level version will include a final project requirement on an advanced topic to be determined by each student with input from the instructor utilizing 2 or more types of UAV sensors and/or integrating with satellite

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. CAT entry
8. Registrar

Approval Path

1. 11/01/23 8:43 pm Stephen Gao (sgao): Approved for RGEOSENG Chair
2. 03/04/24 12:00 pm Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 03/12/24 1:07 pm Stephen Gao (sgao): Approved for RGEOSENG Chair
4. 03/12/24 1:23 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
5. 04/05/24 8:38 am Mark Fitch

remote sensing data.

Prerequisites
None

Field Trip Statement
None required

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

(mfitch): Approved for Engineering DSCC Chair

6. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Justification for new course: This is a graduate-level version of a similar experimental course first run last year and will be continued in 2024. The undergraduate version was successful in demonstrating interest from students and feasibility of course design; improvements are planned to both the undergrad and grad versions based on student input from last year.

Semester(s) previously taught: n/a, undergraduate version taught in Spring 2023.

Co-Listed Courses:
GEOPHYS 6001 - Special Topics
MIN ENG 6001 - Special Topics
PET ENG 6001 - Special Topics

Course Reviewer Comments:
jpnfd (11/06/23 3:09 pm): Added "Advanced" to title per email from instructor 11/6/23. Updated term to Summer 2024
jpnfd (11/08/23 1:50 pm): Per email 11/7/23, Mining and Explosives Engineering Chair approved of MIN ENG 6001 co-listing. Per email 11/7/23, Engineering Management and Systems Engineering approved of SYS ENG 6001 co-listing.
jpnfd (11/16/23 8:48 am): AERO ENG 6001 and MECH ENG 6001 have been removed as co-listed courses per email from Mechanical and Aerospace Engineering Chair on 11/16/23 declining the co-listings.
jpnfd (03/04/24 12:00 pm): Rollback: Rollback. Please resubmit with an approval email attached from Civ Eng or remove Civ Eng as a co-listed course, then resubmit the form.
jpnfd (03/12/24 1:23 pm): Updated term to Fall 2024.

Course Change Request

New Experimental Course Proposal

Date Submitted: 03/18/24 3:13 pm

Viewing: **GEOLOGY 1001.001 : Violent Earth: The Science of Natural Disasters**

File: 5066

Last edit: 03/19/24 4:23 pm

Changes proposed by: eckertan

Requested Effective Change Date	Fall 2024
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geology (GEOLOGY)
Course Number	1001
Topic ID	001
Experimental Title	Violent Earth: The Science of Natural Disasters
Experimental Abbreviated Course Title	Geo 1001
Instructors	Andreas Eckert

Experimental Catalog Description

Our Earth's system and human civilization are very intertwined and even modest changes have shaped the course of civilization. An integral part of Earth systems are natural disasters caused by a natural event resulting in catastrophic loss of life and/or infrastructure. The majority of natural disasters focus on events involving the physical properties of earth and its atmosphere such as earthquakes, hurricanes, volcanoes, floods, etc. This course will utilize well studied examples of previous natural disasters, introduce the events theory and science, and how these disasters have affected human civilization. The course aims to relate the impact of the event on science and human lives and tries to establish a connection between science in the context of real life.

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. CAT entry
8. Registrar

Approval Path

1. 03/18/24 3:23 pm Stephen Gao (sgao): Approved for RGEOSENG Chair
2. 03/29/24 11:13 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/09/24 2:53 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 04/18/24 3:48 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Prerequisites	None				
Field Trip Statement					
Credit Hours	LEC: 2	LAB: 1	IND: 0	RSD: 0	Total: 3

Justification for new course:	The discipline of geosciences is changing. This course reflects recent changes how the discipline of geosciences is perceived in society and highlights an important topic of the geosciences that all students are aware of throughout various types of media. Earth's natural disasters and the science associated to them provide an excellent opportunity to introduce students to the discipline of the geosciences and many of its fundamental theories and principles. In addition, the topic is a great "general education" venue that will engage students for both science and non-science majors. By relating natural disaster events to the impact on society and human lives, the scientific content is placed in the context of the students' real life and how they can/may be affected.
Semester(s) previously taught	New course
Co-Listed Courses:	

Course Reviewer Comments

Key: 5066

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 04/15/24 1:05 pm

Viewing: **HISTORY 3001.011 : History of the Modern Civil Rights Movement**

File: 5078

Last edit: 04/16/24 11:42 am

Changes proposed by: sfogg

Requested Effective Change Date	Spring 2025
Department	History and Political Science
Discipline	History (HISTORY)
Course Number	3001
Topic ID	011
Experimental Title	History of the Modern Civil Rights Movement
Experimental Abbreviated Course Title	Modern US Civil Rights
Instructors	Ketcherside, John Christian

Experimental Catalog Description

This course will examine the origins, people, events, and impact of the modern Civil Rights Movement after World War II in the United States. It examines the historical background and the various causes, elements, and factions of the Movement, as well as its impact on race relations, politics, the economy, and culture of the United States.

Prerequisites

History 1100, History 1200, History 1300, History 1310 or Pol Sci 1200.

Field Trip Statement

In Workflow

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

Approval Path

1. 04/15/24 1:09 pm Shannon Fogg (sfogg): Approved for RHISTORY Chair
2. 04/16/24 11:47 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/16/24 3:31 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 04/18/24 3:49 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC

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

Justification for new course:	We have hired a new professor with expertise in this area. Currently we have no courses that cover this subject in depth in the curriculum. It will also count towards the diversity requirement in the department's curriculum.
Semester(s) previously taught	
Co-Listed Courses:	

Course Reviewer Comments	**jpnfd (04/16/24 11:42 am):** Updated prerequisite format.

Key: 5078

Preview Bridge