

Minutes of the Campus Curricula Committee Meeting**October 30, 2019****9:00am, Bertelsmeyer 110H****(For Faculty Senate Meeting of November 21, 2019)**

Attendees: Steve Raper, Petra Dewitt, Matt Insall, Katie Shannon, Cecil Eng Huang Chua, Michael Davis, Kyle Perry, and Brittany Parnell

The following curriculum forms were discussed and approved:

Course Change Forms:

File: 2047.1	BIO SCI 1953: Introduction to Human Anatomy and Physiology II
File: 1679.1	BIO SCI 1983: Introduction to Biological Design and Innovation
File: 325.1	CHEM 2210: Organic Chemistry I
File: 1098.4	CHEM 2220: Organic Chemistry II
File: 4283.8	CHEM ENG 4101: Chemical Engineering Laboratory I
File: 792.7	CHEM ENG 4130: Chemical Engineering Laboratory II
File: 4284.9	CHEM ENG 4201: Biochemical Separations and Control Laboratory
File: 797.10	CHEM ENG 4220: Biochemical Reactor Laboratory
File: 4286.8	CHEM ENG 4241: Process Safety in the Chemical and Biochemical Industries
File: 1323.1	COMP ENG 6310: Markov Decision Processes

Degree Change Forms:

File: 151.8	CHEM-BA: Chemistry BA
File: 16.29	CHEM-BS: Chemistry BS
File: 17.8	CHEM-MI: Chemistry Minor

Experimental Course Forms:

File: 4668	COMP SCI 5001.005: Experiential Entrepreneurship for Computer Scientists
File: 4659	COMP SCI 5001.006: Internet of Things with Applied Data Science
File: 4663	COMP SCI 5001.007: Introduction to Quantum Computing
File: 4669	GEOPHYS 6001.002: Advanced Seismology

The meeting adjourned at 9:40am.



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

Course Change Request

Date Submitted: 09/13/19 2:09 pm

Viewing: **BIO SCI 1953 : Introduction to Human Anatomy and Physiology II**

File: 2047.1

Last edit: 09/16/19 9:20 am

Changes proposed by: shannonk

Requested **Spring 2020 ~~08/01/2014~~**
 Effective Change
 Date

Department Biological Sciences

Discipline Biological Sciences (BIO SCI)

Course Number 1953

Title Introduction to Human Anatomy and Physiology II

Abbreviated Intro to Human A&P II
 Course Title

In Workflow

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

Catalog Description Second semester of a two-semester sequence of the study of the structure and function of human organ systems, including the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems.

Prerequisites ~~Bio-Sci 1943.~~

Field Trip Statement

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

Required for Majors No

Elective for Majors No

Approval Path

1. 09/13/19 5:05 pm David Duvernell (duvernellD): Approved for RBIOLSCI Chair
2. 09/16/19 9:20 am Brittany Parnell (ershenb): Approved for CCC Secretary
3. 10/11/19 10:37 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 10/15/19 1:11 pm Brittany Parnell (ershenb): Approved for Pending CCC Agenda post

Justification for change: removing prerequisite, courses not required in a particular order. Per PTLW request.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer
 Comments

Key: 2047

5. 10/30/19 10:09
am
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 10/30/19 10:23
am
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

[Preview Bridge](#)

Course Change Request

Date Submitted: 09/16/19 1:07 pm

Viewing: **BIO SCI 1983 : Introduction to Biological Design and Innovation**

File: 1679.1

Last edit: 09/16/19 1:07 pm

Changes proposed by: ershenb

Requested	Spring 2020 08/01/2014
Effective Change Date	
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	1983
Title	Introduction to Biological Design and Innovation
Abbreviated Course Title	Intro to BioDesign

In Workflow

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

<p>Catalog Description</p> <p>Students will identify problems in biomedical sciences, and then design and implement innovative solutions using advanced techniques. Students will present and defend their proposals and results.</p> <p>Prerequisites</p> <p>Bio-Sci-1993-</p> <p>Field Trip Statement</p> <table border="0"> <tr> <td>Credit Hours</td> <td>LEC: 0</td> <td>LAB: 3</td> <td>IND: 0</td> <td>RSD: 0</td> <td>Total: 3</td> </tr> <tr> <td>Required for Majors</td> <td colspan="5">No</td> </tr> <tr> <td>Elective for Majors</td> <td colspan="5">No</td> </tr> </table> <p>Justification for change:</p> <p>removed BIO SCI 1993 prereq per the email with Terry Wilson and Dr. Katie Shannon (CourseLeaf difficulties).</p>	Credit Hours	LEC: 0	LAB: 3	IND: 0	RSD: 0	Total: 3	Required for Majors	No					Elective for Majors	No					<p>Approval Path</p> <ol style="list-style-type: none"> 1. 09/16/19 1:09 pm David Duvernell (duvernell): Approved for RBIOLSCI Chair 2. 09/16/19 2:02 pm Brittany Parnell (ershenb): Approved for CCC Secretary 3. 10/11/19 10:38 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair 4. 10/15/19 1:13 pm Brittany Parnell (ershenb): Approved for
Credit Hours	LEC: 0	LAB: 3	IND: 0	RSD: 0	Total: 3														
Required for Majors	No																		
Elective for Majors	No																		

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Pending CCC
Agenda post
5. 10/30/19 10:10
am
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 10/30/19 10:24
am
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

Key: 1679

[Preview Bridge](#)

Course Change Request

Date Submitted: 10/04/19 2:57 pm

Viewing: **CHEM 2210 : Organic Chemistry I**

File: 325.1

Last edit: 10/04/19 2:57 pm

Changes proposed by: tschuman

Programs referencing this course	CHEM-BA: Chemistry BA CP ENG-BS: Computer Engineering BS CHEM-BS: Chemistry BS CHEM-MI: Chemistry Minor EV ENG-BS: Environmental Engineering BS
Other Courses referencing this course	In The Prerequisites: CHEM 4710 : Principles Of Environmental Monitoring CHEM 5710 : Environmental Monitoring CHEM 6650 : Free Radicals In Biochemistry

Requested **Fall 2020** ~~08/14/2018~~
 Effective Change Date

Department Chemistry
 Discipline Chemistry (CHEM)
 Course Number 2210
 Title Organic Chemistry I
 Abbreviated Course Title Organic Chemistry I

Catalog Description This course consists of four parts: 1) Structure, bonding, and nomenclature; 2) hydrocarbons (alkanes, alkenes, and alkynes), **stereochemistry**, ~~conjugated systems, ultraviolet and visible spectroscopy, stereochemistry,~~ resonance, and molecular orbital theory; 3) substitution and elimination reactions, and 4) identification of organic compounds via infrared and NMR **spectroscopy** ~~spectroscopy~~.

Prerequisites Chem 1310, **Chem** 1319, **Chem** 1320; or **Chem** ~~Chem~~-1351.

Field Trip Statement

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

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

Elective 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. 09/29/19 8:21 am Rainer Glaser (GlaserR): Approved for RCHEMIST Chair
2. 09/30/19 4:21 pm Brittany Parnell (ershenb): Approved for CCC Secretary
3. 10/04/19 2:53 pm Brittany Parnell (ershenb): Rollback to Initiator
4. 10/05/19 3:06 pm Rainer Glaser (GlaserR): Approved for RCHEMIST Chair
5. 10/07/19 9:23 am Brittany Parnell (ershenb):

Justification for change:	Organic chemistry courses at most universities are 3 credit hours each over two semesters. Our courses are 4 credit hours each, a change from 3 each that was imposed after chemical engineering requested a change for us to include biomolecules chemistry, which are later chapters in most organic textbooks. To include the extra content necessitated an additional credit hour each semester. We are seeking to return to our original departmental requirements that are common among peer universities since chemical engineering no longer requires both courses in their curriculum, removing biomolecules content from the course and reducing the numbers of chapters taught in first and second semesters accordingly.	Approved for CCC Secretary 6. 10/11/19 10:42 am Katie Shannon (shannonk): Approved for Sciences DSCC Chair
Semesters previously offered as an experimental course		7. 10/15/19 1:11 pm Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
Co-Listed Courses:		8. 10/30/19 10:56 am Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
Course Reviewer Comments	<p>glaserr (09/29/19 8:21 am): REG on 9/29/19: Changed "stereochemistry" to "stereochemistry".,</p> <p>ershenb (10/04/19 2:53 pm): Rollback: Rolled back per the email from Dr. Schuman.</p>	<p>Key: 325</p> <p>9. 10/30/19 10:57 am Stephen Raper (sraper): Approved for Campus Curricula Committee Chair</p>

[Preview Bridge](#)

Course Change Request

Date Submitted: 10/04/19 3:01 pm

Viewing: **CHEM 2220 : Organic Chemistry II**

File: 1098.4

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

Last edit: 10/04/19 3:01 pm

Changes proposed by: tschuman

Programs referencing this course	CHEM-BA: Chemistry BA CHEM-BS: Chemistry BS
Other Courses referencing this course	<u>In The Prerequisites:</u> CHEM 3510 : Analytical Chemistry II CHEM 4210 : Intermediate Organic Chemistry CHEM 4220 : Intermediate Organic Chemistry II CHEM 4297 : Organic Synthesis And Spectroscopic Analysis CHEM 4610 : General Biochemistry CHEM 5210 : Fundamentals of Synthetic Organic Reactions CHEM 5220 : Synthetic Organic Chemistry CHEM 5510 : Introduction to Chemical Analysis CHEM 5610 : Biochemistry CHEM 6250 : Spectrometric Identification of Organic Compounds CHEM 6650 : Free Radicals In Biochemistry CHEM 6820 : Polymer Synthesis MS&E 6820 : Polymer Synthesis

Requested Effective Change Date	Fall 2020 01/12/2016
Department	Chemistry
Discipline	Chemistry (CHEM)
Course Number	2220
Title	Organic Chemistry II
Abbreviated Course Title	Organic Chemistry II

Catalog Description

In Workflow

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

Approval Path

1. 09/29/19 8:24 am
Rainer Glaser (GlaserR):
Approved for RCHEMIST Chair
2. 09/30/19 4:21 pm
Brittany Parnell (ershenb):
Approved for CCC Secretary
3. 10/04/19 2:53 pm
Brittany Parnell (ershenb):
Rollback to Initiator
4. 10/05/19 3:07 pm
Rainer Glaser (GlaserR):
Approved for RCHEMIST Chair

This course consists of three parts. The first part will cover **unsaturated systems, including** aromaticity and reactions of **unsaturated systems aromatic compounds, the second part will cover carbonyl compounds, amines** and **aromatic compounds, and ultraviolet-visible spectroscopy; the second part will cover carbonyl compounds and their reactions; and reactions, and** the third part will cover **amines and phenols and their reactions. bioorganic compounds that include carbohydrates, aminoacids, peptides, proteins, lipids, nucleosides, nucleotides, and nucleic acids.**

Prerequisites

A grade ~~Grade~~ of "C" or better in Chem 2210.

Field Trip

Statement

Credit Hours	LEC: 3 4	LAB: 0	IND: 0	RSD: 0	Total: 3 4
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Required for Majors	Yes No
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Elective for Majors	No
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Justification for change:

Organic chemistry courses at most universities are 3 credit hours each over two semesters. Our courses are 4 credit hours each, a change from 3 each that was imposed after chemical engineering requested a change for us to include biomolecules chemistry, which are later chapters in most organic textbooks. To include the extra content necessitated an additional credit hour each semester. We are seeking to return to our original departmental requirements that are common among peer universities since chemical engineering no longer requires both courses in their curriculum, removing biomolecules content from the course and reducing the numbers of chapters taught in first and second semesters accordingly.

Semesters

previously offered as an experimental course

Co-Listed

Courses:

Course Reviewer **ershenb (10/04/19 2:53 pm)**: Rollback: Rolled back per the email from Dr. Schuman.
Comments

5. 10/07/19 9:24 am

Brittany Parnell (ershenb):
Approved for CCC Secretary

6. 10/11/19 10:42 am

Katie Shannon (shannonk):
Approved for Sciences DSCC Chair

7. 10/15/19 1:12 pm

Brittany Parnell (ershenb):
Approved for Pending CCC Agenda post

8. 10/30/19 10:12

am
Brittany Parnell (ershenb):
Approved for CCC Meeting Agenda

9. 10/30/19 10:24 am

Stephen Raper (sraper):
Approved for Campus Curricula Committee Chair

History

1. Sep 21, 2015 by tschuman (1098.1)

Key: 1098

[Preview Bridge](#)

Course Change Request

Date Submitted: 09/10/19 4:07 pm

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

File: 4283.8

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

Last edit: 10/15/19 1:12 pm

Changes proposed by: ershenb

Requested	Fall 2020 08/14/2018
Effective Change Date	
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

Stat 3113 and Chem Eng 3141.

Field Trip

Statement

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

change:

The old Chemical Engineering curriculum being phased out completely in 2019 did not explicitly require STAT 3113, but instead used a number of lecture and lab hours to cover applied engineering statistics. The current Chemical Engineering curriculum

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. 09/10/19 6:45 pm Joseph Smith (smithjose): Approved for RCHEMENG Chair
2. 09/11/19 8:06 am Brittany Parnell (ershenb): Approved for CCC Secretary
3. 09/30/19 11:18 am Stephen Raper (sraper): Approved for Engineering DSCC Chair
4. 10/15/19 1:12 pm Brittany Parnell (ershenb): Approved for

specifically includes STAT 3113 as a required junior course, which, in practice and in our concept of curriculum design, should be a prerequisite to senior laboratory courses including CHEM ENG 4101.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer

Comments

ershenb (09/10/19 4:29 pm): submitted per the request of Dr. Wang due to CourseLeaf technical difficulties.

Pending CCC
Agenda post
5. 10/30/19 10:13
am
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 10/30/19 10:24
am
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

History

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

Key: 4283

[Preview Bridge](#)

Course Change Request

Date Submitted: 09/10/19 4:10 pm

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

File: 792.7

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

Last edit: 10/15/19 1:13 pm

Changes proposed by: ershenb

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

Other Courses referencing this course

In The Prerequisites:
[CHEM ENG 4110 : Chemical Engineering Process Dynamics And Control](#)

Requested **Fall 2020 ~~08/14/2018~~**

Effective Change Date

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

Approval Path

1. 09/10/19 6:45 pm Joseph Smith (smithjose): Approved for RCHEMENG Chair
2. 09/11/19 8:13 am Brittany Parnell (ershenb): Approved for CCC Secretary
3. 09/30/19 11:18 am Stephen Raper (sraper): Approved for Engineering DSCC Chair
4. 10/15/19 1:13 pm Brittany Parnell (ershenb): Approved for

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

Stat 3113, Chem Eng ~~3130 and Chem Eng 3140~~; or Chem Eng 3141 and Chem Eng ~~3131; 3131 and~~ preceded or accompanied by Chem Eng 3150.

Field Trip Statement

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

Justification for change:	Pending CCC Agenda post 5. 10/30/19 10:17 am Brittany Parnell (ershenb): Approved for CCC Meeting Agenda 6. 10/30/19 10:24 am Stephen Raper (sraper): Approved for Campus Curricula Committee Chair
Semesters previously offered as an experimental course	
Co-Listed Courses:	History 1. May 24, 2016 by forcinit (792.1)
Course Reviewer	
Comments	ershenb (09/10/19 4:28 pm): submitted forms per the request of Dr. Wang due to CourseLeaf technical difficulties.

Key: 792

[Preview Bridge](#)

Course Change Request

Date Submitted: 09/10/19 10:15 am

Viewing: **CHEM ENG 4201 : Biochemical Separations and Control Laboratory**

File: 4284.9

Last approved: 02/04/19 5:02 am

Last edit: 10/15/19 1:13 pm

Changes proposed by: jcwang

Requested	Fall 2019 2020
Effective Change Date	
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4201
Title	Biochemical Separations and Control Laboratory
Abbreviated Course Title	Bioseparations Lab Biochemical Separations

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

Catalog

Description

Introduction to the unit operations employed in the separation of chemicals and biochemicals. The experiments illustrate the staged and continuous separation systems that are involved. Application of concepts of industrial process dynamics and control. Communications emphasized.

Prerequisites

Stat 3113; Preceded or accompanied by Chem Eng 5250.

Field Trip

Statement

Credit Hours	LEC: 1	LAB: 2	IND: 0	RSD: 0	Total: 3
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Required for Majors Yes

Elective for Majors No

Justification for

change:

The old Biochemical Engineering curriculum being phased out completely in 2019 did not explicitly require Stat 3113, but instead used a number of lecture and lab

Approval Path

1. 09/10/19 6:45 pm Joseph Smith (smithjose): Approved for RCHEMENG Chair
2. 09/11/19 8:20 am Brittany Parnell (ershenb): Approved for CCC Secretary
3. 09/30/19 11:18 am Stephen Raper (sraper): Approved for Engineering DSCC Chair
4. 10/15/19 1:13 pm Brittany Parnell (ershenb): Approved for

courses to cover applied engineering statistics. The current Biochemical Engineering curriculum specifically includes Stat 3113 as a required sophomore/junior course, which, in practice and in our concept of curriculum design, should be a prerequisite to senior laboratory courses including ChE 4201.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Pending CCC
Agenda post
5. 10/30/19 10:18
am
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 10/30/19 10:24
am
Stephen Raper
(srapper):
Approved for
Campus Curricula
Committee Chair

Key: 4284

History

1. May 24, 2016 by Daniel Forciniti (forcinit)
2. Feb 4, 2019 by jcwang (4284.8)

[Preview Bridge](#)

Course Change Request

Date Submitted: 09/10/19 10:26 am

Viewing: **CHEM ENG 4220 : Biochemical Reactor Laboratory**

File: 797.10

Last approved: 10/21/16 3:02 pm

Last edit: 10/15/19 1:14 pm

Changes proposed by: jcwang

Requested	Fall 2020 08/14/2018
Effective Change Date	
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4220
Title	Biochemical Reactor Laboratory
Abbreviated Course Title	Bioreactor Laboratory

Catalog Description	Introduction to the unit operations involved with the production of biochemicals. The experiments emphasize the isolation of proteins and enzymes from tissue and bacteria cells. This is a communications emphasized course.				
Prerequisites	Stat 3113; Preceded Chem Eng 3200 and preceded 4210; or preceded or accompanied by Chem Eng 5250 and Chem Eng 4210. or accompanied by Chem Eng 5250 and Chem Eng 4210.				
Field Trip Statement					
Credit Hours	LEC: 1	LAB: 2	IND: 0	RSD: 0	Total: 3
Required for Majors	Yes				
Elective for Majors	No				

Justification for change: ChE 3200 has ceased to exist and is thus removed from being a prerequisite. The old Biochemical Engineering curriculum being phased out completely in 2019 did not explicitly require Stat 3113, but instead used a number of lecture and lab courses to cover applied engineering statistics. The current Biochemical Engineering curriculum specifically includes Stat 3113 as a required sophomore/junior course, which, in practice and in our concept of curriculum design, should be a prerequisite to senior laboratory courses including ChE 4220.

Semesters previously offered as an experimental course

In Workflow

- RCHEMENG Chair**
- CCC Secretary**
- Engineering DSCC Chair**
- Pending CCC Agenda post**
- CCC Meeting Agenda**
- Campus Curricula Committee Chair**
- FS Meeting Agenda**
- Faculty Senate Chair
- Registrar
- CAT entry
- Peoplesoft

Approval Path

- 09/10/19 6:45 pm Joseph Smith (smithjose): Approved for RCHEMENG Chair
- 09/11/19 8:21 am Brittany Parnell (ershenb): Approved for CCC Secretary
- 09/30/19 11:18 am Stephen Raper (sraper): Approved for Engineering DSCC Chair
- 10/15/19 1:14 pm Brittany Parnell (ershenb): Approved for Pending CCC Agenda post

Co-Listed Courses:	5. 10/30/19 10:22 am Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
Course Reviewer Comments	6. 10/30/19 10:24 am Stephen Raper (srafer): Approved for Campus Curricula Committee Chair
	History
	1. Oct 21, 2016 by forcinit (797.1)

Key: 797

[Preview Bridge](#)

Course Change Request

Date Submitted: 08/29/19 11:33 am

Viewing: **CHEM ENG 4241 : Process Safety in the Chemical and Biochemical Industries**

File: 4286.8

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

Last edit: 10/15/19 1:14 pm

Changes proposed by: ershenb

Requested **Fall 2020** ~~08/14/2018~~

Effective Change

Date

Department Chemical and Biochemical Engineering

Discipline Chemical Engineering (CHEM ENG)

Course Number 4241

Title Process Safety in the Chemical and Biochemical Industries

Abbreviated **Process** ~~BioProcess~~-Safety

Course Title

In Workflow

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

Catalog Description This course covers risk assessment, **hazardous and/or toxic materials containment, environmental impact, safety regulations, biohazard containment** and ~~inactivation practices, and~~ other **safety biosafety**-issues relevant to **chemical and biochemical industries**. ~~industrial bioprocessing. Considerations relating to the release of genetically modified organisms are also discussed.~~

Prerequisites Preceded or accompanied by Chem Eng **3150. 4210**.

Field Trip Statement

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

Required for Majors Yes

Elective for Majors No

Justification for change: To modify the prerequisite to align the course more consistently with the rest of the required courses and to update its abbreviated course title and course description to better reflect the essence of the course.

Semesters previously offered as an experimental course A one credit hr version of this class is already in the catalogue as ChE 4230

Approval Path

1. 09/10/19 6:46 pm Joseph Smith (smithjose): Approved for RCHEMENG Chair
2. 09/11/19 8:22 am Brittany Parnell (ershenb): Approved for CCC Secretary
3. 09/30/19 11:18 am Stephen Raper (sraper): Approved for Engineering DSCC Chair
4. 10/15/19 1:14 pm Brittany Parnell (ershenb): Approved for Pending CCC Agenda post

Co-Listed

Courses:

Course Reviewer **ershenb (08/29/19 11:33 am)**: Submitted the changes per the request of Dr. Wang
Comments for technical CourseLeaf difficulties.

Key: 4286

5. 10/30/19 10:23
am
Brittany Parnell
(ershenb):
Approved for CCC

Meeting Agenda
6. 10/30/19 10:24
am
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

History

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

[Preview Bridge](#)

Course Change Request

Date Submitted: 09/12/19 12:00 pm

Viewing: **COMP ENG 6310 : Markov Decision Processes**

File: 1323.1

Last edit: 09/16/19 9:19 am

Changes proposed by: sweetk

Programs referencing this course	CP ENG-BS: Computer Engineering BS
Other Courses referencing this course	<p><u>In The Catalog Description:</u></p> <p>AERO ENG 6447 : Markov Decision Processes</p> <p>COMP SCI 6202 : Markov Decision Processes</p> <p>ENG MGT 6410 : Markov Decision Processes</p> <p>MECH ENG 6447 : Markov Decision Processes</p>

Requested Effective Change Date: **Spring 2020 08/01/2014**

Department: Electrical and Computer Engineering

Discipline: Computer Engineering (COMP ENG)

Course Number: 6310

Title: Markov Decision Processes

Abbreviated Course Title: Markov Decision Processes

Catalog Description: Introduction to Markov Decision Processes and Dynamic Programming. Application to Inventory Control and other optimization and control topics.

Prerequisites: Graduate standing in background of probability or statistics.

Field Trip Statement:

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

Required for Majors: No

Elective for Majors: No

Justification for change: Systems Engineering would like to add a Sys Eng course as a co-listed course

Semesters previously:

- In Workflow
1. RELECENG Chair
 2. RENG MNGT Chair
 3. CCC Secretary
 4. Engineering 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. 09/13/19 6:58 pm
Daryl Beetner (daryl): Approved for RELECENG Chair
 2. 09/14/19 11:44 am
Suzanna Long (longsuz): Approved for RENG MNGT Chair
 3. 09/16/19 9:19 am
Brittany Parnell (ershenb): Approved for CCC Secretary
 4. 09/30/19 11:18 am
Stephen Raper (sraper): Approved for

offered as an experimental course

Co-Listed Courses: MECH ENG 6447 - Markov Decision Processes
AERO ENG 6447 - Markov Decision Processes
ENG MGT 6410 - Markov Decision Processes
COMP SCI 6202 - Markov Decision Processes
SYS ENG 6217 - Course Not Found

Course Reviewer Comments

Engineering DSCC Chair

5. 10/15/19 1:21 pm
Brittany Parnell (ershenb):
Approved for Pending CCC Agenda post

6. 10/30/19 10:24 am
Brittany Parnell (ershenb):
Approved for CCC Meeting Agenda

7. 10/30/19 10:24 am
Stephen Raper (sraper):
Approved for Campus Curricula Committee Chair

Key: 1323

[Preview Bridge](#)

Program Change Request

Date Submitted: 09/12/19 2:50 pm

Viewing: **CHEM-BA : Chemistry BA**

File: 151.8

Last approved: 06/18/18 12:29 pm

Last edit: 10/30/19 12:26 pm

Changes proposed by: tschuman

Catalog Pages Using this Program

[Chemistry](#)

Start Term

Fall 2020 ~~08/13/2018~~

Program Code

CHEM-BA

Department

Chemistry

Title

Chemistry BA

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**
10. **Kristy Giacomelli-Feys**

Approval Path

1. 09/29/19 8:26 am
Rainer Glaser (GlaserR):
Approved for RCHEMIST Chair
2. 09/30/19 4:23 pm
Brittany Parnell (ershenb):
Approved for CCC Secretary
3. 10/11/19 10:44 am
Katie Shannon (shannonk):
Approved for Sciences DSCC Chair
4. 10/15/19 1:18 pm
Brittany Parnell (ershenb):
Approved for Pending CCC Agenda post
5. 10/30/19 10:56 am
Brittany Parnell (ershenb):
Approved for CCC Meeting Agenda
6. 10/30/19 10:57 am
Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Mar 18, 2014 by Lahne Black (lahne)
2. Jul 15, 2015 by pantaleoa
3. Jun 18, 2018 by Thomas Schuman (tschuman)

Bachelor of Arts Chemistry

Freshman Year			
First Semester	Credits	Second Semester	Credits
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	CHEM 1510	2
CHEM 1100	1	HISTORY 1100	3
MATH 1208	5	MATH 1221	5
ENGLISH 1120	3	Humanities Electives	3
	14		16
Sophomore Year			
First Semester	Credits	Second Semester	Credits
CHEM 2210	3	CHEM 2220	3
CHEM 2219	1	CHEM 2229	1
Electives	6	ENGLISH 1160	3
HISTORY 1200	3	Elective	6
Humanities Elective	3	Social Elective	3
	16		16
Junior Year			
First Semester	Credits	Second Semester	Credits
CHEM 2510	4	Chem Electives (see list below)	4
PHYSICS 1111	4	PHYSICS 2111	4
PHYSICS 1119	1	PHYSICS 2119	1
STAT 3113	3	Electives	6
Elective	4		
	16		15
Senior Year			
First Semester	Credits	Second Semester	Credits
CHEM 3410 , or 3430 , or 3420	3	CHEM 4010	1
CHEM 3419 or 3429	1	Humanities Elective	3
Humanities Elective Literature	3	Social Sciences Elective	3
Social Electives	6	Electives	6
Elective	3		
	16		13
Total Credits: 122			

Students must complete a minimum of 120 credit hours for the bachelor of arts in chemistry degree. Students may have to take more than the minimum number of coursework hours to comply with the B.A. requirements due to variations in minor degree and foreign language requirements within an individual's program of study.

Elective credits include a required minor in one of the following areas: English, economics, history, philosophy, psychology, sociology, communications, speech, media, political science, music, mathematics, statistics, foreign language, computer science, biology, or art. See Undergraduate catalog for courses required for specific minor. All chemistry majors are encouraged to do research through [CHEM 4099](#). A total of 9 credits of a modern foreign language must also be taken as part of the electives above.

Chem Elective must be from one or more of the following: [CHEM 4210](#), [CHEM 4297](#), [CHEM 4410](#), [CHEM 4510](#), [CHEM 4610](#), [CHEM 4619](#), [CHEM 4620](#), [CHEM 4710](#), [CHEM 4810](#), [CHEM 4819](#), [CHEM 4850](#). This program of study allows students to design, in conjunction with their chemistry advisor, a program for many disciplines including pre-law, business, pre-dentistry, pre-veterinary medicine, as well as pre-medicine. An example of such a program is shown for pre-medical studies:

BIO SCI 1113	General Biology	3
BIO SCI 1219	General Biology Lab	2
BIO SCI 2213	Cell Biology	3
BIO SCI 2219	Cell Biology Laboratory	1
CHEM 4610	General Biochemistry	3
CHEM 4619	General Biochemistry Laboratory	2

A grade of "C" or better is required for each Chemistry course counted towards the degree.

Bachelor of Arts
Chemistry
Secondary Education Emphasis Area

Freshman Year			
First Semester	Credits	Second Semester	Credits
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	CHEM 1510	2
CHEM 1100	1	ENGLISH 1160	3
ENGLISH 1120	3	MATH 1215	4
MATH 1214	4	BIO SCI 1113	3
PSYCH 1101	3	EDUC 1104	2
EDUC 1040	2		
	18		17
Sophomore Year			
First Semester	Credits	Second Semester	Credits
CHEM 2210	3	CHEM 2220	3
CHEM 2219	1	CHEM 2229	1
PHYSICS 1135	4	STAT 3113	3
EDUC 2102 or PSYCH 2300	3	PHYSICS 2135	4
ENGLISH 1221 or 1222	3	EDUC 3216	3
EDUC 1174	2	SP&M S 1185	3
	16		17
Junior Year			
First Semester	Credits	Second Semester	Credits
CHEM 2510	4	CHEM 3410 , or 3430 , or 3420	3
PHYSICS 1505 or GEOLOGY 1110	3	CHEM 3419 or 3429	1
ENGLISH 3170	3	HISTORY 3530	3
BIO SCI 2263	3	EDUC 4310 or PSYCH 4310	3
HISTORY 1300 or 1340	3	ART 1180 , or an art , or music , or theatre course	3
EDUC 1164	2	POL SCI 1200	3
HISTORY 1100	3	HISTORY 1200	3
Humanities Elective	3		
	21		16
Senior Year			
First Semester	Credits	Second Semester	Credits
CHEM 4010	1	EDUC 4298	1
EDUC 3280	6	EDUC 4299	12
PSYCH 3310	3		
PHILOS 1105	3		
CHEM 4610	3		
CHEM 4619	2		
	18		13
Total Credits: 136			

Students must complete a minimum of ~~136~~ ~~135~~ credit hours for the Bachelor of Arts in Chemistry degree with a Secondary Education Emphasis Area. The degree program is intended to culminate in a Certification Recommendation for an initial Missouri teaching certification. Students should also consult the Secondary Teacher Education Program section for Teacher Certification requirements through the Education department.

For this Bachelor of Arts degree program, the minor degree and foreign language requirements of the typical program of study are waived and there are other course substitutions in lieu of education coursework and requirements. A total of nine humanities credit hours are required to be selected from [ENGLISH 1221](#) or [ENGLISH 1222](#), [PHILOS 1105](#), [ART 1180](#), [MUSIC 1150](#), or [THEATRE 1190](#).

Four hours of a Chemistry Elective must be selected from one or more of the following: [CHEM 4210](#), [CHEM 4297](#), [CHEM 4410](#), [CHEM 4510](#), [CHEM 4610](#), [CHEM 4619](#), [CHEM 4620](#), [CHEM 4710](#), [CHEM 4810](#), [CHEM 4819](#), [CHEM 4850](#), and [CHEM 4099](#). [CHEM 4099](#) may not count for more than 3 hr credit toward the degree. All chemistry majors are encouraged to do research through [CHEM 4099](#).

A grade of "C" or better is required for each Chemistry course counted towards the degree.

Justification for request

Decrease in number of hours for organic chemistry courses. No change in degree hours for B.A. but two hour decrease in degree hours for B.A. with secondary education teaching emphasis. The history courses previously specified were incorrect against the general B.A. degree requirements and were not required by DESE; we have merely aligned the degree plan to meet both DESE and S&T requirements.

Supporting Documents

Course Reviewer Comments

ershenb (09/12/19 3:41 pm): updated start term Fall 2020.

ershenb (10/15/19 1:16 pm): FYI: red boxes appear on degree forms since those courses are changing their credit hours effective Fall 2020.

ershenb (10/30/19 12:26 pm): changed fine art to an art, music, or theatre course.

Key: 151

Program Change Request

Date Submitted: 10/04/19 2:18 pm

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

File: 16.29

Last approved: 05/03/18 8:52 am

Last edit: 10/15/19 1:16 pm

Changes proposed by: tschuman

Catalog Pages Using this Program

[Chemistry](#)

Start Term

Fall 2020 08/13/2018

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
10. Kristy Giacomelli-Feys

Approval Path

1. 09/29/19 8:26 am
Rainer Glaser
(GlaserR):
Approved for
RCHEMIST Chair
2. 10/04/19 11:56 am
Brittany Parnell
(ershenb): Rollback
to Initiator
3. 10/04/19 2:36 pm
Rainer Glaser
(GlaserR):
Approved for
RCHEMIST Chair
4. 10/04/19 2:52 pm
Brittany Parnell
(ershenb):
Approved for CCC
Secretary
5. 10/11/19 10:44 am
Katie Shannon
(shannonk):
Approved for
Sciences DSCC
Chair
6. 10/15/19 1:18 pm

Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
7. 10/30/19 10:26 am
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
8. 10/30/19 10:49 am
Stephen Raper
(sraper): Approved
for Campus
Curricula
Committee Chair

History

1. Apr 28, 2014 by
Thomas Schuman
(tschuman)
2. Jun 19, 2015 by
woelk (woelkk)
3. Jun 28, 2017 by
Thomas Schuman
(tschuman)
4. May 3, 2018 by
Thomas Schuman
(tschuman)

Bachelor of Science Chemistry

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

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

Freshman Year			
First Semester	Credits	Second Semester	Credits
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	CHEM 1510	2
CHEM 1100	1	MATH 1215	4

CHEM 1110	1	Electives	6
MATH 1214	4		
ENGLISH 1120	3		
HISTORY 1200 , or 1300 , or 1310 , or POL SCI 1200	3		
	17		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 3410	3
PHYSICS 1135	4	PHYSICS 2135	4
Electives	4	Select one of the following sequences:	3
		COMP SCI 1972 & COMP SCI 1982	
		COMP SCI 1570 & COMP SCI 1580	-
		IS&T 1561	
		COMP SCI 1971 & COMP SCI 1981	
	16		14
Junior Year			
First Semester	Credits	Second Semester	Credits
CHEM 2310	3	CHEM 2319	1
CHEM 2510	4	CHEM 2320	3
CHEM 3430	3	CHEM 3420	3
STAT 3113 or 3115	3	CHEM 3459	2
ENGLISH 1160 or 3560	3	Electives	6
	16		15
Senior Year			
First Semester	Credits	Second Semester	Credits
CHEM 3510	4	CHEM 4010 or 4099	1
CHEM 4010 or 4099	1	CHEM 4297	3
CHEM 4610	3	Electives	12
CHEM 4810	3		
Electives	7		
	18		16

Total Credits: 127

Notes:**Grade Requirements:** A minimum grade of "C" is required for each chemistry course counted towards the degree.**ROTC:** Basic ROTC may be taken in the freshman and sophomore year, but does not count towards the degree.**Electives:** There are thirty-three (33) hours of electives, not to include Math courses that are prerequisite to calculus. Twelve (12) hours must be 2xxx, 3xxx, 4xxx (or 5xxx or higher with permission) level in chemistry or another technical area with permission of department. Six (6) elective hours must be completed in the social sciences. Six (6) elective hours are required in the humanities. Three (3) of the humanities hours must be literature.

Chemistry

Biochemistry Emphasis Area

Freshman Year			
First Semester	Credits	Second Semester	Credits
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	CHEM 1510	2
CHEM 1100	1	MATH 1215	4
CHEM 1110	1	BIO SCI 2213	3
ENGLISH 1120	3	BIO SCI 2219	1
MATH 1214	4	Electives	3
HISTORY 1200 , or 1300 , or 1310 , or POL SCI 1200	3		
	17		16
Sophomore Year			
First Semester	Credits	Second Semester	Credits
CHEM 2210	3	CHEM 2220	3
CHEM 2219	1	CHEM 2229	1
MATH 2222	4	CHEM 3410	3
PHYSICS 1135	4	PHYSICS 2135	4
Electives	4	Select one of the following sequences:	3
		COMP SCI 1972 & COMP SCI 1982	
		COMP SCI 1570 & COMP SCI 1580	-
		IS&T 1561	
		COMP SCI 1971 & COMP SCI 1981	
	16		14

Junior Year			
First Semester	Credits	Second Semester	Credits
CHEM 2310	3	CHEM 2319	1
CHEM 3430	3	CHEM 2320	3
CHEM 4610	3	CHEM 2510	4
CHEM 4619	2	CHEM 3420	3
STAT 3113 or 3115	3	CHEM 3459	2
ENGLISH 1160 or 3560	3	CHEM 4620	3
	17		16
Senior Year			
First Semester	Credits	Second Semester	Credits
CHEM 3510	4	CHEM 4010 or 4099	1
CHEM 4010 or 4099	1	CHEM 4297	3
CHEM 4810	3	Electives	12
CHEM 4630	3		
Electives	4		
	15		16
Total Credits: 127			

Notes:

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

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

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

Polymer & Coatings Science Emphasis Area

Freshman Year			
First Semester	Credits	Second Semester	Credits
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	CHEM 1510	2
CHEM 1100	1	MATH 1215	4
CHEM 1110	1	Electives	6
MATH 1214	4		
ENGLISH 1120	3		
HISTORY 1200 , or 1300 , or 1310 , or POL SCI 1200	3		

	17		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 3410	3
PHYSICS 1135	4	PHYSICS 2135	4
Electives	4	Select one of the following sequences:	3
		COMP SCI 1972 & COMP SCI 1982	
		COMP SCI 1570 & COMP SCI 1580	-
		IS&T 1561	
		COMP SCI 1971 & COMP SCI 1981	
	16		14
Junior Year			
First Semester	Credits	Second Semester	Credits
CHEM 2510	4	CHEM 3420	3
CHEM 3430	3	CHEM 3459	2
CHEM 4810	3	CHEM 4099	3
STAT 3113 or 3115	3	CHEM 4819	1
ENGLISH 1160 or 3560	3	CHEM 4850	3
		Elective	3
	16		15
Senior Year			
First Semester	Credits	Second Semester	Credits
CHEM 2310	3	CHEM 2319	1
CHEM 3510	4	CHEM 2320	3
CHEM 4610	3	CHEM 4297	3
PHYSICS 4523	3	Electives	10
Electives	4		
	17		17
Total Credits: 127			

Notes:

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

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

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

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

Pre-medicine Emphasis Area

Freshman Year			
First Semester	Credits	Second Semester	Credits
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	CHEM 1510	2
CHEM 1100	1	MATH 1215	4
CHEM 1110	1	BIO SCI 1113	3
MATH 1214	4	BIO SCI 1219	2
HISTORY 1200 , or 1300 , or 1310 , or POL SCI 1200	3	ENGLISH 1120	3
	14		17
Sophomore Year			
First Semester	Credits	Second Semester	Credits
CHEM 2210	3	CHEM 2220	3
CHEM 2219	1	CHEM 2229	1
MATH 2222	4	CHEM 3410	3
PHYSICS 1135	4	PHYSICS 2135	4
BIO SCI 2213	3	Select one of the following sequences:	3
BIO SCI 2219	1	COMP SCI 1972 & COMP SCI 1982	
		COMP SCI 1570 & COMP SCI 1580	-
		IS&T 1561	
		COMP SCI 1971 & COMP SCI 1981	
	16		14
Junior Year			
First Semester	Credits	Second Semester	Credits
CHEM 3430	3	CHEM 2510	4
CHEM 4610	3	CHEM 3420	3
CHEM 4619	2	CHEM 4620	3

CHEM 4010 or 4099	1	STAT 3113 or 3115	3
BIO SCI 3333	3	BIO SCI 3343	3
BIO SCI 3339	1	BIO SCI 3349	1
ENGLISH 1160 or 3560	3		
	16		17
Senior Year			
First Semester	Credits	Second Semester	Credits
CHEM 2310	3	CHEM 2319	1
CHEM 3510	4	CHEM 2320	3
CHEM 3459	2	CHEM 4297	3
CHEM 4010 or 4099	1	Electives	9
CHEM 4810	3		
Electives	4		
	17		16
Total Credits: 127			

Notes:

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

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

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

Justification for request

We are decreasing the credit hours for both organic chemistry lecture courses from 4 to 3 credit hours each with no change in total degree hours by increasing the electives hours.

Comp Sci no longer teaches the terminal course in programming (1971/1981 sequence), so comp sci 1972/1982 (Matlab), IST 1561 (Java), and a transfer equivalency Comp Sci 1971/1981 are listed as required for programming course.

Supporting Documents

Course Reviewer Comments

ershenb (09/12/19 3:42 pm): updated start term to Fall 2020.

ershenb (10/04/19 11:56 am): Rollback: Rollback per email with Dr. Schuman.

ershenb (10/15/19 1:16 pm): FYI: red boxes appear on degree form since those courses are changing their credit hours effective Fall 2020.

Key: 16

Program Change Request

Date Submitted: 10/04/19 11:58 am

Viewing: **CHEM-MI : Chemistry Minor**

File: 17.8

Last approved: 06/27/16 9:25 am

Last edit: 10/04/19 1:43 pm

Changes proposed by: tschuman

Catalog Pages Using this Program

[Chemistry](#)

Start Term

Fall 2020 08/15/2016

Program Code

CHEM-MI

Department

Chemistry

Title

Chemistry Minor

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
10. Kristy Giacomelli-Feys

Approval Path

1. 10/04/19 2:38 pm
Rainer Glaser
(GlaserR):
Approved for
RCHEMIST Chair
2. 10/04/19 2:52 pm
Brittany Parnell
(ershenb):
Approved for CCC
Secretary
3. 10/11/19 10:44 am
Katie Shannon
(shannonk):
Approved for
Sciences DSCC
Chair
4. 10/15/19 1:19 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 10/30/19 10:30 am
Brittany Parnell
(ershenb):
Approved for CCC

Meeting Agenda
6. 10/30/19 10:49 am
Stephen Raper
(sraper): Approved
for Campus
Curricula
Committee Chair

History

1. Apr 28, 2014 by
Thomas Schuman
(tschuman)
2. Jun 27, 2016 by
woelk (woelkk)

Minor in Chemistry

A minor in chemistry requires a minimum of **18** ~~19~~ hours of chemistry course work selected in conjunction with a chemistry faculty advisor. The required courses are [CHEM 1100](#) , [CHEM 1310](#) , [CHEM 1319](#) , [CHEM 1320](#) , [CHEM 2210](#) and either [CHEM 2219](#) ~~CHEM 2219~~ or [CHEM 2289](#) ~~CHEM 2289~~. Five additional hours of chemistry are to be selected from [CHEM 1510](#) or ~~CHEM 1510~~ or other Chem 2000, 3000, and 4000-level courses. A minimum grade of "C" is required for each course counted toward the minor.

Justification for request

The courses of organic chemistry are reduced in their credit hours each by one. The intent for the minor is to have the required courses plus two courses as the minor, or 5 additional hours of course work (e.g., 1510 and organic, or another chemistry discipline). Chem 1100 is required since it is a campus prerequisite for labs but is not considered a content course for the minor.

Supporting Documents

Course Reviewer Comments

ershenb (10/04/19 1:43 pm): updated start term to Fall 2020

Key: 17

Course Change Request

New Experimental Course Proposal

Date Submitted: 09/26/19 1:20 pm

Viewing: **COMP SCI 5001.005 : Experiential Entrepreneurship for Computer Scientists**

File: 4668

Last edit: 10/16/19 1:27 pm

Changes proposed by: zhupe

Requested Spring 2020
Effective Change
Date

Department Computer Science

Discipline Computer Science (COMP SCI)

Course Number 5001

Topic ID 005

Experimental Title Experiential Entrepreneurship for Computer Scientists

Experimental Abbreviated Course Title CompSci Entrepreneurship

Instructors George Markowsky

Experimental Catalog Description

Students will work in teams mentored by experienced entrepreneurs to generate innovative ideas and transform them into business models for economically viable knowledge tech companies. Experiential learning will be used in live customer discovery, prototyping and market validation. The prototyping phase will contain a significant computer science component.

Prerequisites

A grade of "C" or better in Comp Sci 3100.

Field Trip Statement

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

In Workflow

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

Approval Path

1. 09/30/19 8:39 am
Bruce McMillin (ff): Approved for RCOMPSCI Chair
2. 10/03/19 10:41 am
Brittany Parnell (ershenb): Approved for CCC Secretary
3. 10/14/19 8:50 am
Stephen Raper (sraper): Approved for Engineering DSCC Chair
4. 10/16/19 8:57 am
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 10/30/19 10:27 am
Brittany Parnell (ershenb):

Justification for

new course:

Entrepreneurship in computing has remade our world. Many of the most prominent companies in the world were once tiny companies. The CS Department has been offering an Entrepreneurship course in one form or another for 5 years. This is a redesign of this popular course that is planned to work more closely with the other courses offered by the CS Department. The course has always been popular with computer science majors and this redesign will focus more on software engineering principles than previous versions of this course. This course will help the CS Department offer a more comprehensive program and address a very important area in computing.

Please note: An experimental course with the same title, description, and hours was created in 2014 and taught Fall 2014, 2015, 2016, 2017, and Spring 2017, 2018, and 2019, with the prerequisite of "COMP SCI 1510." (known today as COMP SCI 1575). This new experimental course proposal differs with a new prerequisite of " A grade of C or better in COMP SCI 3100."

Semester(s)

previously taught

Co-Listed

Courses:

Course Reviewer

Comments

Approved for CCC

Meeting Agenda

6. 10/30/19 10:49
am

Stephen Raper

(sraper):

Approved for

Campus Curricula

Committee Chair

7. 10/30/19 11:07
am

Marita Tibbetts

(tibbettsmg):

Approved for CAT

entry

Key: 4668

[Preview Bridge](#)

Course Change Request

New Experimental Course Proposal

Date Submitted: 09/29/19 10:16 am

Viewing: **COMP SCI 5001.006 : Internet of Things with Applied Data Science**

File: 4659

Last edit: 10/15/19 4:25 pm

Changes proposed by: zhupe

Requested	Spring 2020
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	5001
Topic ID	006
Experimental Title	Internet of Things with Applied Data Science
Experimental Abbreviated Course Title	IoT with Appl Data Sci
Instructors	Tony T. Luo

Experimental Catalog Description
 This course provides a broad introduction to the Internet of Things and applied data science. The goal is to create a synergy between the two domains by applying data science as a tool for improving existing IoT systems or creating new, value-added IoT services. This is a research-oriented course with expectation of mini projects and/or term papers.

Prerequisites
 A grade of "C" or better in Comp Sci 2500, Comp Sci 3800, and in one of Stat 3113, Stat 3115, Stat 3117 or Stat 5643. Basic understanding of computer and wireless networks.

Field Trip Statement

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

Justification for new course:
 Both IoT and Data Science are impactful and trending fields, yet their convergence is expected to generate even more impacts. This course is a timely response to this rising trend by providing students with a foundation to embark on this new line of research and practice.

Semester(s) previously taught
 None

In Workflow

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

Approval Path

1. 09/17/19 9:46 am
Bruce McMillin (ff): Rollback to Initiator
2. 09/30/19 8:38 am
Bruce McMillin (ff): Approved for RCOMPSCI Chair
3. 10/03/19 10:44 am
Brittany Parnell (ershenb): Approved for CCC Secretary
4. 10/14/19 8:50 am
Stephen Raper (sraper): Approved for Engineering DSCC Chair
5. 10/15/19 4:26 pm
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
6. 10/30/19 10:28 am
Brittany Parnell

Co-Listed

Courses:

Course Reviewer **ff (09/17/19 9:46 am)**: Rollback: I doubt 5600 will be offered next semester so taking it concurrently is not an option. Tony could make 3800 a prerequisite which would give the students enough concurrent programming background.

Key: 4659

(ershenb):
Approved for CCC Meeting Agenda

7. 10/30/19 10:49 am
Stephen Raper

(sraper):
Approved for Campus Curricula Committee Chair

8. 10/30/19 11:05 am
Marita Tibbetts

(tibbettsmg):
Approved for CAT entry

[Preview Bridge](#)

Course Change Request

New Experimental Course Proposal

Date Submitted: 09/26/19 10:07 am

Viewing: **COMP SCI 5001.007 : Introduction to Quantum**

Computing

File: 4663

Last edit: 10/16/19 1:26 pm

Changes proposed by: zhupe

Requested	Spring 2020
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	5001
Topic ID	007
Experimental Title	Introduction to Quantum Computing
Experimental Abbreviated Course Title	Quantum Computing
Instructors	George Markowsky

In Workflow

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

Approval Path

1. 09/30/19 8:39 am
Bruce McMillin (ff): Approved for RCOMPSCI Chair
2. 10/03/19 10:45 am
Brittany Parnell (ershenb): Approved for CCC Secretary
3. 10/14/19 8:50 am
Stephen Raper (sraper): Approved for Engineering DSCC Chair
4. 10/16/19 8:57 am
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 10/30/19 10:28 am
Brittany Parnell (ershenb):

Experimental Catalog Description
 This course provides an introduction to the emerging field of quantum computation. The course will cover such topics as complex numbers and Hilbert space, basic quantum mechanics, quantum gates, Deutsch's algorithm, Shor's algorithm, Grover's algorithm, quantum programming, theoretical foundations of quantum computing, and open problems in quantum computing.

Prerequisites
 A grade of "C" or better in both Comp Sci 2500 and Math 3108.

Field Trip Statement

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

new course:

Quantum computing is a very important area in computer science that has the potential to completely revolutionize the field. We have never offered a course in this area before and it is important to provide students with an opportunity to learn about this revolutionary new direction in computing.

Semester(s)

previously taught

None

Co-Listed

Courses:

Course Reviewer

Comments

ershenb (10/16/19 8:55 am): FYI: a COMP SCI 6001 course exists with the same title, description, and hours, but a different prerequisite ("A grade of C or better in Comp Sci 5200").

Approved for CCC

Meeting Agenda

6. 10/30/19 10:49
am

Stephen Raper

(srafer):

Approved for

Campus Curricula

Committee Chair

7. 10/30/19 11:09
am

Marita Tibbetts

(tibbettsmg):

Approved for CAT

entry

Key: 4663

[Preview Bridge](#)

Course Change Request

New Experimental Course Proposal

Date Submitted: 09/17/19 3:12 pm

Viewing: **GEOPHYS 6001.002 : Advanced Seismology**

File: 4669

Last edit: 10/15/19 4:28 pm

Changes proposed by: liukh

Requested	Spring 2020
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geophysics (GEOPHYS)
Course Number	6001
Topic ID	002
Experimental Title	Advanced Seismology
Experimental Abbreviated Course Title	Advanced Seismology
Instructors	Kelly Liu & Stephen Gao

In Workflow

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

Approval Path

1. 09/18/19 10:18 am
David Borrok (borrokd):
Approved for RGEOENG Chair
2. 09/20/19 11:01 am

Experimental Catalog Description
Theories and applications in modern seismology. Topics include theories of elastic wave propagation in the earth, physics of earthquakes, spatial and temporal distributions of earthquakes, and advanced computationally intensive techniques for imaging the earth's internal structure.

Prerequisites
Geophys 3210 or Graduate Standing in Geosciences and Geological and Petroleum Engineering (GGPE).

Field Trip Statement

Credit Hours	LEC: 1	LAB: 2	IND: 0	RSD: 0	Total: 3
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- Brittany Parnell (ershenb):
Approved for CCC Secretary
3. 10/11/19 10:44 am
Katie Shannon (shannonk):
Approved for Sciences DSCC Chair
4. 10/15/19 4:28 pm
Brittany Parnell (ershenb):
Approved for Pending CCC Agenda post

Justification for new course:

A large portion of graduate students in Geology and Geophysics are in the area of seismology. While elementary seismological knowledge is covered in Introduction to Geophysics (Geophys 3210), at the present time there is no advanced graduate level course in this area. In the past students learned the advanced topics on themselves, and it has become clear that a systematic treatment of the advanced topics is in great need. The course will better prepare the students for real-life research in the area of observational and theoretical seismology.

Semester(s)
previously taught

Co-Listed
Courses:

Course Reviewer
Comments

- 5. 10/30/19 10:29 am
Brittany Parnell (ershenb):
Approved for CCC Meeting Agenda
- 6. 10/30/19 10:49 am
Stephen Raper (sraper):
Approved for Campus Curricula Committee Chair
- 7. 10/30/19 11:12 am
Marita Tibbetts (tibbettsmg):
Approved for CAT entry

Key: 4669

[Preview Bridge](#)