I. APPROVAL OF ORDER OF AGENDA

II. APPROVAL OF MINUTES

III. NOTIFICATION

LVN to ADN Advanced Placement Pathway

Effective: Summer 2009
Modify: Program title
Department requested name change from LVN to RN Upgrade Program. Per nursing faculty B. Costello and L. Riggs, the name change is based on recommendations from state Nursing Education Consultant and also complies with state regulatory body, the Board of Registered Nursing (BRN). Request was made during catalog revisions; notification item is being provided to Curriculum Committee for notification and documentation purposes

Correction to FSCI hours

Effective: Spring 2009
Modify: hours
Current FSCI courses entered in CurricUNET which are 40-hour courses have had unit values revised to reflect correct hours and unit values. Future revisions/additions to FSCI courses will utilize correct values in lecture and/or lab fields to meet state-mandated hours.

Cross-listed Courses

In fall of 2008, the following courses were reviewed by the Curriculum Committee without their cross-listings also being identified for review. Per Karen Walters Dunlap, those approved actions should also take place on following cross-listed courses effective Summer 2009. Please note: the course outlines for the cross-listed courses will need to be updated in CurricUNET to correspond to the updates which took place on the parent course. Please see the meeting minutes of the date referenced to review what modifications took place.

<table>
<thead>
<tr>
<th>Course</th>
<th>Cross-listing</th>
<th>Meeting Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILM 154</td>
<td>SOCSC 154</td>
<td>November 6, 2007</td>
</tr>
<tr>
<td>GEOG 109</td>
<td>ENSCI 109</td>
<td>November 18, 2008</td>
</tr>
<tr>
<td>MUSIC 172</td>
<td>RATV 172</td>
<td>November 6, 2007</td>
</tr>
<tr>
<td>MUSIC 176</td>
<td>CLDDV 292</td>
<td>November 6, 2007</td>
</tr>
<tr>
<td>MUSIC 177</td>
<td>CLDDV 293</td>
<td>November 6, 2007</td>
</tr>
<tr>
<td>MUSIC 178</td>
<td>RATV 178</td>
<td>November 6, 2007</td>
</tr>
<tr>
<td>SPCOM 101</td>
<td>RATV 101 and THETR 101</td>
<td>October 21, 2008</td>
</tr>
<tr>
<td>SPCOM 106</td>
<td>SUPR 106</td>
<td>October 21, 2008</td>
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<td>SPCOM 120</td>
<td>THETR 120</td>
<td>October 21, 2008</td>
</tr>
<tr>
<td>SPCOM 122</td>
<td>THETR 122</td>
<td>October 21, 2008</td>
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<tr>
<td>SPCOM 123</td>
<td>THETR 123</td>
<td>October 21, 2008</td>
</tr>
<tr>
<td>SPCOM 124</td>
<td>THETR 124</td>
<td>October 21, 2008</td>
</tr>
<tr>
<td>SPCOM 145</td>
<td>AGGE 145</td>
<td>October 21, 2008</td>
</tr>
</tbody>
</table>
## III. CONSENT

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Effective</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSE 885</td>
<td>Evening Jazz Band</td>
<td>Summer 2009</td>
<td>0 009</td>
<td></td>
</tr>
<tr>
<td>AG 285</td>
<td>Agricultural Communications</td>
<td>Summer 2010</td>
<td>3 013</td>
<td></td>
</tr>
<tr>
<td>AGGE 146</td>
<td>Agriculture, Environment, and Society</td>
<td>Summer 2010</td>
<td>3 025</td>
<td></td>
</tr>
<tr>
<td>CHEM 101</td>
<td>General Chemistry 1</td>
<td>Summer 2009</td>
<td>5 037</td>
<td>Expedited!</td>
</tr>
</tbody>
</table>

### MUSE 885 Evening Jazz Band
- **Effective:** Summer 2009
- **Modify:** Number
- **Enrollment Restrictions:** None
- **Distance Education Status:** Not approved for Distance Education
- **Materials Fee Status:** None
- **Articulation Status:** Does not transfer
- **General Education Status:** Not approved for GE

This course was OLDAD 847 – Jazz Band until the prefix/number and title were changed to MUSE 881 Evening Jazz Band at the 1/20/09 meeting. Changing the number to MUSE 885 Evening Jazz Band would mimic the course numbering in the 100-block (MUSE 185/MUSE 885).

### AG 285 Agricultural Communications
- **Effective:** Summer 2010
- **Modify:** Course goal, content, typical assignments, methods of assessment, textbooks
- **Enrollment Restrictions:** None
- **Distance Education Status:** Not approved for Distance Education
- **Materials Fee Status:** None
- **Articulation Status:** Transfers to CSU.
- **General Education Status:** Not approved for GE

### AGGE 146 Agriculture, Environment, and Society
- **Effective:** Summer 2010
- **Modify:** Course goal, typical assignments, methods of instruction, methods of assessment
- **Enrollment Restrictions:** None
- **Distance Education Status:** Not approved for Distance Education
- **Materials Fee Status:** None
- **Articulation Status:** Transfers to CSU and UC.
- **General Education Status:** Approved for MJC-GE:B, CSU-GE:D7

### CHEM 101 General Chemistry 1
- **Effective:** Summer 2009 **Expedited!**
- **Modify:** Description, restrictions, course goal, typical assignments, methods of instruction, methods of assessment, textbooks
- **Enrollment Restrictions:** Modifying: (P) Satisfactory completion of MATH 90. (A) Satisfactory completion of CHEM 142.
- **Distance Education Status:** Renewing approval for Hybrid modality.
- **Materials Fee Status:** None
- **Articulation Status:** Transfers to CSU and UC.
- **General Education Status:** Approved for MJC-GE:A, CSU-GE:B1,B3, IGETC:5A
CHEM 102  General Chemistry 2  5  055
Effective: Summer 2009 Expedited!
Modify: Description, materials fees, course goal, learning goals, content, typical assignments, methods of instruction, methods of assessment, textbooks
Enrollment Restrictions: Maintaining: (P) Satisfactory completion of CHEM 101
Distance Education Status: Renewing approval for Hybrid modality.
Materials Fee Status: Removing fee.
Articulation Status: Transfers to CSU and UC.
General Education Status: Approved for CSU-GE:B1,B3, IGETC:5A. Requesting MJC-GE:A

CHEM 112  Organic Chemistry 1  5  071
Effective: Summer 2009 Expedited!
Modify: Materials fees, restrictions, course goal, learning goals, typical assignments, methods of instruction, methods of assessment, textbooks
Enrollment Restrictions: Maintaining: (P) Satisfactory completion of CHEM 101
Distance Education Status: Removing Hybrid modality
Materials Fee Status: Removing fee.
Articulation Status: Transfers to CSU and UC.
General Education Status: Approved for CSU-GE:B1,B3, IGETC:5A

CHEM 142  Pre-General Chemistry  3  085
Effective: Summer 2010
Modify: Materials fee, course goal, learning goals, content, typical assignments, methods of instruction, methods of assessment, textbooks
Enrollment Restrictions: Maintaining (C) Concurrent enrollment in or satisfactory completion of MATH 90.
Distance Education Status: Renewing approval for Hybrid modality.
Materials Fee Status: Removing fee.
Articulation Status: Transfers to CSU and UC.

CHEM 144  Fundamentals of Organic & Biochemistry  4  099
Effective: Summer 2009 Expedited!
Modify: Materials fees, restrictions, course goal, learning goals, typical assignments, methods of instruction, methods of assessment, textbooks
Enrollment Restrictions: Modifying: (P) Satisfactory completion of CHEM 143.
Distance Education Status: Requesting approval for Hybrid modality.
Materials Fee Status: Removing fee.
Articulation Status: Transfers to CSU and UC.
General Education Status: Approved for CSU-GE:B1,B3, IGETC:5A Requesting MJC-GE:A

EHS 215  Landscape Design  3  113
Effective: Summer 2009 Expedited!
Modify: Course goal, learning goals, content, typical assignments, methods of instruction, methods of assessment, textbooks
Enrollment Restrictions: Maintaining: (A) Satisfactory completion of EHS 201 and EHS 202.
Distance Education Status: Not approved for Distance Education
Materials Fee Status: None
Articulation Status: Transfers to CSU.
General Education Status: Not approved for GE
<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Effective</th>
<th>Modify:</th>
<th>Enrollment Restrictions:</th>
<th>Distance Education Status:</th>
<th>Materials Fee Status:</th>
<th>Articulation Status:</th>
<th>General Education Status:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENSCI 108</td>
<td>Environmental Conservation</td>
<td>3</td>
<td>Summer 2010</td>
<td>Field trips, course goal, typical assignments, methods of instruction, methods of assessment, textbooks</td>
<td>None</td>
<td>Not approved for Distance Education</td>
<td>None</td>
<td>Transfers to CSU and UC</td>
<td>Approved for MJC-GE:A, CSU-GE:B2, IGETC:5B</td>
</tr>
<tr>
<td>FDP 342</td>
<td>Introductory Wine Evaluation</td>
<td>1</td>
<td>Summer 2010</td>
<td>Field trips, restrictions, course goal, typical assignments, methods of assessment, textbooks</td>
<td>Modifying: (L) Enrollment limited to persons 21 years of age or older.</td>
<td>Not approved for Distance Education</td>
<td>Maintaining fee of $40.00.</td>
<td>Does not transfer.</td>
<td>Not approved for GE</td>
</tr>
<tr>
<td>FSCI 304</td>
<td>Bldg Construction for Fire Prevention</td>
<td>3</td>
<td>Summer 2010</td>
<td>Description, repeats, course goal, learning goals, content, typical assignments, methods of assessment, textbooks</td>
<td>Maintaining: (P) Satisfactory completion of FSCI 301.</td>
<td>Not approved for Distance Education</td>
<td>None</td>
<td>Does not transfer.</td>
<td>Not approved for GE</td>
</tr>
<tr>
<td>FSCI 353</td>
<td>Training Instructor 1B</td>
<td>2</td>
<td>Summer 2010</td>
<td>Title, hours, description, course goal, learning goals, content, typical assignments, methods of assessment, textbooks</td>
<td>Maintaining: (P) Satisfactory completion of FSCI 352.</td>
<td>Not approved for Distance Education</td>
<td>Maintaining fee of $110.00.</td>
<td>Does not transfer.</td>
<td>Not approved for GE</td>
</tr>
<tr>
<td>MATH 50</td>
<td>Business Mathematics</td>
<td>3</td>
<td>Summer 2010</td>
<td>Course goal, learning goals, typical assignments, methods of assessment</td>
<td>Maintaining: (P) Satisfactory completion of MATH 20.</td>
<td>Not approved for Distance Education</td>
<td>None</td>
<td>Does not transfer.</td>
<td>Not approved for GE</td>
</tr>
<tr>
<td>PLSC 260</td>
<td>Plant Disease Control</td>
<td>3</td>
<td>Summer 2010</td>
<td>Course goal, typical assignments, methods of assessment, textbooks</td>
<td>None</td>
<td>Not approved for Distance Education</td>
<td>None</td>
<td>Transfers to CSU.</td>
<td>Not approved for GE</td>
</tr>
</tbody>
</table>
V. UNFINISHED BUSINESS

Informational Items

1. Title 5 Compliance Progress

2. CurricUNET Trainings
   a. Training scheduled
      February 26, 2009  FH 154  3:00 – 4:30
      March 12, 2009   FH 154  3:00 – 4:30
      March 26, 2009   FH 154  3:00 – 4:30

VI. NEW BUSINESS

VII. TASK FORCES

1. Special Topics, Experimental, Independent, Work-Experience Task Force
   B. Adams
   No report

2. CurricUNET Implementation Task Force Update
   B. Sanders / B. Adams
   No report

VIII. PUBLIC COMMENT


Others Present: None

I. APPROVAL OF ORDER OF AGENDA

II. APPROVAL OF MINUTES

M/S/U (J. Daly, R. Cranley) to approve the minutes of January 20, 2009 with corrections noted during the meeting.

III. DISCUSSION

AGEC 200  Agricultural Accounting and Analysis  3
Effective: Summer 2010
Modify: Course goal, learning goals, content, typical assignments, methods of assessment
Enrollment Restrictions: None
Distance Education Status: Not approved for Distance Education
Materials Fee Status: None
Articulation Status: Transfers to CSU.
General Education Status: Not approved for GE
M/S/U to approve modifications to AGEC 200 (J. Daly, C. Hudelson-Putnam)

ANSC 227  Advanced Dairy Cattle Selection and Evaluation  3
Effective: Summer 2010
Modify: Restrictions, course goal, learning goals, content, typical assignments, methods of assessment, textbooks
Enrollment Restrictions: Remove: (P) ANSC 221. Request: (A) ANSC 220, ANSC 221, and/or completed another class in livestock evaluation.
Distance Education Status: Not approved for Distance Education
Materials Fee Status: None
Articulation Status: Transfers to CSU.
General Education Status: Not approved for GE
M/S/U to approve modifications to ANSC 227 (J. Daly, C. Hudelson-Putnam)
M/S/U to approve ENROLLMENT RESTRICTIONS for ANSC 227 (M. Morales, M. Garcia)
ANSC 230  Poultry Science 3
Effective: Summer 2010
Modify: Course goal, learning goals, content, typical assignments, methods of assessment, textbooks
Enrollment Restrictions: None
Distance Education Status: Not approved for Distance Education
Materials Fee Status: None
Articulation Status: Transfers to CSU.
General Education Status: Not approved for GE
M/S/U to approve modifications to ANSC 230 (J. Daly, C. Hudelson-Putnam)

FSCI 304  Bldg Construction for Fire Prevention 3
Effective: Summer 2010
Modify: Description, repeats, course goal, learning goals, content, typical assignments, methods of assessment, textbooks
Enrollment Restrictions: Maintaining: (P) Satisfactory completion of FSCI 301.
Distance Education Status: Not approved for Distance Education
Materials Fee Status: None
Articulation Status: Does not transfer.
General Education Status: Not approved for GE
Withdrawn from agenda by the division representative (J. Sola)

FSCI 353  Training Instructor 1B 2
Effective: Summer 2010
Modify: Title, hours, description, course goal, learning goals, content, typical assignments, methods of assessment, textbooks
Enrollment Restrictions: Maintaining: (P) Satisfactory completion of FSCI 352.
Distance Education Status: Not approved for Distance Education
Materials Fee Status: Maintaining fee of $110.00.
Articulation Status: Does not transfer.
General Education Status: Not approved for GE
Withdrawn from agenda by the division representative (J. Sola)

NURSE 115  Introduction for Nursing Majors ½
Effective: Summer 2009 Expedited!
Modify: Title, description, course goal, learning goals, content, typical assignments, methods of assessment
Enrollment Restrictions: None
Distance Education Status: Not approved for Distance Education
Materials Fee Status: None
Articulation Status: Transfers to CSU.
General Education Status: Not approved for GE
M/S/U to approve modifications to NURSE 115 (R. Cranley, C. Hudelson-Putnam)
M/S/U to approve Removal from MJC-GE: Guidance (R. Cranley, J. Daly)
M/S/U to approve EXPEDITED APPROVAL (G. Boodrookas, P. Upton)

PE 102  Offensive Football Theory 2
Effective: Summer 2010
Modify: Repetitions, course goal, content, typical assignments, methods of assessment
Enrollment Restrictions: None
Distance Education Status: Not approved for Distance Education
Materials Fee Status: None
Articulation Status: Transfers to CSU and UC.
General Education Status: Approved for MJC-GE: Activities
M/S/U to approve modifications to PE 102 (G. Boodrookas, M. Morales) with it being noted in discussion that course was not currently approved for MJC-GE: Activities and was not requesting it.
V. UNFINISHED BUSINESS

Action Items

1. **Student Learning Outcomes and the Course Outline of Record**  
   A. Peek
   A. Peek indicated this item should be removed from the agenda. No action needs to be taken.

2. **Foreign Language Course Equivalency**  
   R. Cranley
   R. Cranley and B. Adams noted the resolution approved at 1/20/09 meeting (with correction of typographical error and approval date notation in footer) was included in agenda packet for documentation purpose. No action needed to be taken, as this was an information item only.

Informational Items

1. **Title 5 Compliance Progress**

2. **Skills Recognitions – Update on Conversion for 17 Unit or Fewer Awards**  
   K. Walters Dunlap
   B. Adams reported there was no change in status since last meeting.

3. **Broadness of Degrees – Revised Deadlines and Instructions**  
   B. Sanders
   a. **Areas of Emphasis**  
      B. Sanders
   b. **AOEs and Production of 08-09 Addendum**  
      L. Senechal
      M. Adams asked if these items were still needed on agenda. C. Hudelson-Putnam noted some disciplines might want to still create AOE’s, so there was some relevance to leaving on agenda.

4. **CurricUNET Trainings**  
   B. Adams
   a. **Training scheduled**
      B. Adams informed the committee of four additional trainings that have been scheduled. These workshops are for those who need initial training or additional training/assistance with course outline entry in CurricUNET. The trainings/workshops are scheduled in FH 154 from 3 PM to 4:30 PM on the following dates:
      - February 12, 2009
      - February 26, 2009
      - March 12, 2009
      - March 26, 2009
      C. Hudelson-Putnam suggested B. Adams send an e-mail to all MJC faculty announcing the training dates/times and encouraging faculty to attend. Additionally, the submission deadlines and documents discussing the curriculum review cycle could be included in the e-mail.

      **ACTION ITEM:** B. Adams will e-mail CurricUNET training/workshop information and curriculum review cycle information to MJC faculty.

5. **Contradiction: Minimum Math Requirements for Associates Degree**  
   R. Cranley/B. Adams
   R. Cranley and B. Adams noted the document approved at 11/18/08 meeting (with corrections of typographical error and approval date notation in footer) was included in agenda packet for documentation purposes. A. Peek noted one more typographical error in the language and rationality section. B. Adams noted correction and will revise document accordingly.

   **ACTION ITEM:** B. Adams will e-mail corrected document to MJC Curriculum Committee members.
6. **Multiple Degrees/Awards**
   S. Agostini
   M. Adams inquired if this item needed to be discussed further. Committee members recalled S. Agostini presented as an informational item and asked that the issue be addressed in the future and some resolution be made. Additionally, it was noted L. Senechal offered to prepare a document illustrating varied purposes of MJC awards; creation of document will occur sometime after February and catalog production deadline has been met.

**VI. NEW BUSINESS**

**Action Items**

1. **FTECH Prefix**
   J. Sola / B. Adams
   J. Sola explained the proposal for new prefix CE and timeframe. J. Sola explained the need for special topics offerings for community level and current firefighters. B. Adams explained J. Sola and L. Parker believed this was the best option after investigating possibilities. The research involved course searches in ASSIST and how other colleges have formatted various course offerings to accommodate quick turnaround offerings. M. Morales indicated AG has similar CE offerings and L. Lanigan commented the nursing profession is similar regarding continuing education requirements. J. Sola explained the state has certification levels. As examples, J. Sola stated he had to recently attend a CE offering to receive update on curriculum, and state officer trainers now must have continuing education.

   **M/S/U to approve the FTECH prefix (G. Boodrookas/J. Sola).**

**VII. TASK FORCES**

1. **Special Topics, Experimental, Independent, Work-Experience Task Force**
   B. Adams
   *No report*

2. **CurricUNET Implementation Task Force Update**
   B. Sanders / B. Adams
   B. Adams informed the committee she recently e-mailed the CurricUNET project manager asking for assistance in resolving issues identified by MJC personnel. Hopefully there will be some action from programmers and we will see improvement in the data entry process and future documents generated by CurricUNET.

**VIII. PUBLIC COMMENT**

Meeting adjourned at 3:54 PM.
Maurice,

Thank you for providing the background information regarding the suggested program name change.

Letitia, please proceed with the requested change(s) for catalog.

Sean, please add a notification item regarding the program name change to the 2/17/09 agenda for documentation purposes.

Thanks!

Barbara Adams  
Curriculum Co-Chair  
Modesto Junior College  
(209) 575-6890

---

Dr. Maurice McKinnon  
Dean, Allied Health/Family & Consumer Science  
Modesto Junior College  
(209) 575-6373 ~ (209) 575-6593 FAX

Barbara,

Please let us know if you need any additional information. We do not think that our prospective students will be confused with this change. And I concur with what has been said about advanced placement even if it is not Board mandated.

Thanks for your patience and assistance.

---

Lisa Riggs  
(209) 575-6890  
Curriculum Committee Agenda  
February 17, 2009
In addition to Bonnie's response below, the change in wording from "LVN to ADN Upgrade Program" to "LVN to RN Advanced Placement Pathway" coincides with the California State Chancellor's Office grant reporting and request forms that consistently refer to "advanced placement" students. The change is appropriate and accurate and also complies with our state regulatory body, the Board of Registered Nursing (BRN).

Lisa Riggs

From: Bonnie Costello
Sent: Thursday, February 05, 2009 12:41 PM
To: Maurice McKinnon
Cc: Lisa Riggs
Subject: RE: 09-10 Catalog - Nursing: LVN to ADN Upgrade Program Page

Dr. McKinnon,
Our nursing program had our Board of Registered Nursing approval visit November 2008. Our state Nursing Education Consultant, Kay Weinkam, questioned our use of the term "LVN to ADN Upgrade Program". What we have had in fact is a pathway for students who are LVNs to become RNs by granting them credit for their LVN training and giving them advanced placement in the RN program. She suggested we change the wording but it is not mandated. There are technical differences between and LVN to ADN Upgrade Program and Advanced Placement for LVNs that I was not aware of until Kay Weinkam clarified it for me. It actually makes our catalog and other advertising material more accurate.

Bonnie

Bonnie Costello, RN, MSN
Director of Nursing Program
Modesto Junior College
209-575-6383

Dr. Maurice McKinnon
Dean, Allied Health/Family & Consumer Science
Modesto Junior College
(209) 575-6373 ~ (209) 575-6593 FAX
From: Barbara Adams  
Sent: Wednesday, February 04, 2009 7:20 PM  
To: Maurice McKinnon  
Subject: RE: 09-10 Catalog - Nursing: LVN to ADN Upgrade Program Page

Thanks!

Barbara

---

From: Maurice McKinnon  
Sent: Tue 2/3/2009 5:29 PM  
To: Barbara Adams  
Cc: Karen Walters Dunlap; Letitia Senechal; Michael Adams  
Subject: RE: 09-10 Catalog - Nursing: LVN to ADN Upgrade Program Page

Hi Barbara,

We certainly do not want to create a negative impact on students. I will speak with the faculty in the morning and get back to you.

Thanks.

Dr. Maurice McKinnon  
Dean, Allied Health/Family & Consumer Science  
Modesto Junior College  
(209) 575-6373 ~ (209) 575-6593 FAX

---

From: Barbara Adams  
Sent: Saturday, January 31, 2009 1:36 PM  
To: Maurice McKinnon  
Cc: Karen Walters Dunlap; Letitia Senechal; Michael Adams  
Subject: 09-10 Catalog - Nursing: LVN to ADN Upgrade Program Page

Hi Maurice,

I've been assisting Letitia with proofing the 2009-2010 catalog, and I'm hoping you can provide some clarification on a requested change to the LVN to ADN upgrade program description on p. 103 of the current '08-'09 MJC catalog. There is a proposed change for the "LVN to ADN Upgrade" program title to be replaced with "Advanced Placement Pathway."

Is this an accreditation issue and the Board of Registered Nursing is mandating the use of this terminology? If so, could you forward the documentation to the Instruction Office for recordkeeping purposes? The documentation will also be included in a future curriculum committee agenda as a notification item.

I'm somewhat concerned about a substantial change to a program title not coming in front of the curriculum committee; good practices recommend submittal to the curriculum committee for review and approval (or at the very least, if state mandated, notification). Another concern lies in potential student confusion with this proposed terminology and with Advanced Placement credit and our University Preparation and CTE pathways.

Thanks in advance for your assistance in elaborating on this matter,

Barbara

Barbara Adams
Nursing:
LVN to ADN
Advanced Placement Pathway (LVN to RN)

The Licensed Vocational Nurse (LVN) to Associate Degree Nursing (ADN) program at Modesto Junior College prepares students to take the National Council Licensure Examination (NCLEX-RN), leading to licensure as a Registered Nurse (RN). This pathway is approved by the California Board of Registered Nursing.

The LVN to ADN Advanced Placement Pathway offers spring semesters each year. It is a two-semester pathway. Although most classes are scheduled during the day, clinical experiences may include both morning and evening hours. During the five-week preceptorship program in NURSE 267, students will be expected to be in the clinical area on a full-time basis. Students must be flexible and prepared to accept these assignments.

Program expenses vary for each individual. The estimated cost of the LVN to ADN upgrade program is $1,600 per semester, which includes enrollment and material fees, health clearance, uniforms, books, and licensure examination. If you would like information on Financial Aid, call 575-7700. For academic advising contact Allied Health, 575-6362.

Eligibility And Preparation for the LVN to ADN Advanced Placement Pathway

- Admission To Modesto Junior College
- High School Graduation Or Equivalent (GED or College Degree)
- Official Transcripts on File in the MJC Records Office

All transcripts (high school or equivalent and other colleges) must be on file in the MJC Records Office, prior to the Program application deadline. The Records Office will accept hand-carried transcripts that are in a sealed envelope with a school seal.

Required Competencies for Application

The two required competencies must be met by program application deadline.

MATH COMPETENCY

<table>
<thead>
<tr>
<th>Eligibility for Math 90 on assessment test</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 70 [NP] Elementary Algebra (C or better)</td>
<td>5 OR</td>
</tr>
<tr>
<td>MATH 71 [NP] Elementary Algebra 1 (C or better)</td>
<td>3 AND</td>
</tr>
<tr>
<td>MATH 72 [NP] Elementary Algebra 2 (C or better)</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTE: If you do not have Catalog Rights prior to fall 2009, you will need eligibility for Math 101 or above on the assessment test or completion of Math 90 or above with a grade of "C" or better in order to receive your Associate’s degree.

ANAT 125 Human Anatomy .................................................. 5
MICR 101 Microbiology ....................................................... 4
PHYS 101 Introductory to Human Physiology .................. 5
ENGL 101 Composition and Reading ................................. 3

NOTE: Change in Program Application Process

Beginning in 2010, the ADN program will have one application period per year instead of two. The annual application period will run from May 1 through May 31. Students will be selected from the annual applicant pool for the upcoming fall and spring semesters.

Program Application

Applications are available online or from Allied Health during the application periods listed below:

Spring 2010 Deadline .................................................. August 31
Fall 2010 and Spring 2011 Deadline .......................... May 31

Applications must be received in Allied Health by the application deadlines listed below:

Spring 2010 Deadline .................................................. August 31
Fall 2010 and Spring 2011 Deadline .......................... May 31

grades on transcript at time of application.

 Chancellor's Model

The MJC LVN to ADN Advanced Placement Pathway is based on the Chancellor's Model for selection of program applicants. Applicants must achieve a success Index score of 70 or higher to be qualified. Randomized selection will be used to select students from the pool of applicants with a score of 70 and above. The following four values are included in the selection formula for the Chancellor's Model:

- College GPA: All lower division courses with grades on transcripts are included in calculating this GPA.
- College English GPA: All transferable lower division English courses are included in calculating this GPA.
- Core Biology GPA: (Anatomy 125, Physiology 101, Microbiology 101)
- Core Biology Repetitions: The overall composite score is lowered for each unsuccessful attempt of the core biology coursework (NC, W, D, and F). Courses completed with a "C" grade will not be counted as repetitions.

Note: The Chancellor's Model only penalizes students for repeats within 6 years of application to the program. NC, W, D and F grades in the core biology courses will not be counted as repeats if they are more than six years old.

Pathway expenses vary for each individual. The estimated start-up costs for the first semester is approximately $2,000 and $1,500 per semester. These costs include enrollment and materials fees, criminal background check and drug screening fees, health clearance, uniforms, books and pre-licensure readiness examination.
If you set up your fire science class with 1.89 units of lecture and 0.11 units of lab, that'll work out to be 2 units and 40 hours. Attachment shows that if you had more digits to work with you’d get 34 hrs lec and 6 hrs lab. But inputting unit values leads to some minor roundoff error.

As for process:
1. Needs to be done administratively in background.
2. Need permission from co-chairs.
3. Goes on agenda as notification item for error correction.
4. Someone with tech access makes actual change prior to implementation in fall.

Hope this helps.

B.
Set up fire science 40-hour classes as 34 hours of lecture and 6 hours of lab. This totals out as 2 units.

As for pay, this is not a case where a fulltime faculty member is attempting to increase pay or decrease workload. All these classes are taught by adjunct or honorarium.
I. COURSE OVERVIEW
The following information is what will appear in the MJC 2008-2009 Catalog.

MUSE 885 – Evening Jazz Band

Study and performance of jazz literature in both traditional and contemporary jazz styles.
May be completed up to 4 times. Field trips may be required. Non-Graded.

II. LEARNING CONTEXT
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in section III: Desired Learning.

1. COURSE CONTENT

A. REQUIRED

A. Music Notation

1. Traditional usage
2. Functional vocabulary
3. Contemporary formats

B. Meter and Rhythm

1. Simple, compound, and complex time signatures
2. Note and rest values
3. Tied combinations of note and rest values
4. Fermatas and Anacruses
5. Aspects of individual time-keeping in combos and in the big band formats

C. Jazz Band Literature

1. Traditional works with programmatic and non-programmatic formats
2. Original big band literature
3. Transcriptions from other genres (m.c.)
4. Contemporary works (m.c.)
5. Functional and dance band literature
6. Solo works with large ensemble accompaniment

D. Rehearsal Techniques

1. Tuning and warm-up rituals
2. Balance and blend
3. Tone color
4. Phrasing
5. Articulation
6. Working out of individual and sectional parts
7. Interpretation and style (m.c.)

E. Performance Preparation and Execution

1. Concert format
2. Length of program
3. Performer endurance
4. Aesthetic considerations
5. Professionalism

F. Individualized Improvisation

1. Twelve bar blues with the rhythm section
2. Extended solos using thematic material
3. Extended solos outside of thematic material
4. Solos within the rhythm section
5. Free-time drum solos

2. ENROLLMENT RESTRICTIONS

None

3. HOURS OF INSTRUCTION PER TERM

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<td>Lab/Studio/Activity</td>
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<tr>
<td>Total Units Earned:</td>
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4. TYPICAL METHODS OF INSTRUCTION

Instructors of this course might conduct the course using the following methods:
Face-to-face education -
1. Lecture
2. Vocal demonstration
3. Audio excerpts
4. Demonstration on applicable instrument

5. TYPICAL ASSIGNMENTS

A. Quality: Assignments require the appropriate level of critical thinking

1. Quality: Assignments require the appropriate level of critical thinking
   1. In a given section of a music part, perform your part in tune and
      with accurate rhythm, appropriate style and artistic nuance,
      both individually and within the ensemble or section.
   2. Given an audio excerpt or a live performance by another
      musician in the ensemble, evaluate that performance for
      accuracy in pitch, rhythm, dynamic contrast, and stylistic
      considerations.

2. Quantity: Hours spent on assignments in addition to hours of
   instruction (lecture hours)
   1. Weekly rehearsal of repertoire
   2. Weekly rehearsals
   3. 1 or more public performances per semester

B. Quantity: Hours spent on assignments in addition to hours of instruction
   (lecture hours)

6. TEXTS AND OTHER READINGS

A. Required Texts:
B. Other reading material: Each term will feature a different set of musical
   repertoire. Sheet music will be chosen from the canon of standard jazz
   literature.

III. DESIRED LEARNING

A. COURSE GOAL

As a result of satisfactory completion of this course, the student should be
prepared to:

participate in rehearsal and public performances of a variety of jazz styles in a
jazz ensemble setting.
B. STUDENT LEARNING GOALS
Mastery of the following learning goals will enable the student to achieve the overall course goal.

REQUIRED LEARNING GOALS
Upon satisfactory completion of this course, the student will be able to:

1. Participate in public performances of a variety of jazz music in traditional and contemporary styles.

RECOMMENDED LEARNING GOALS
Upon satisfactory completion of this course (when the related recommended content is covered), the student will be able to:

1. Identify and perform pitch notation as prescribed by the assigned instrumental part.
2. Identify and perform rhythmic notation as prescribed by the assigned instrumental part.
3. Identify and perform metric notation as prescribed by the assigned instrumental part.
4. Identify and perform terms of expression as printed on an instrumental part.
5. Interpret rehearsal terms as specified within the course content.
6. Practice active listening techniques
7. Demonstrate a sense of teamwork within the ensemble
8. Rehearse the repertoire chosen for the current semester. (m.c.)

IV. METHODS OF MEASURING STUDENT PROGRESS

A. FORMATIVE ASSESSMENT:
1. Evaluation of weekly participation in rehearsal
2. Aural evaluation of mastery of literature through individual and section/ensemble playing
3. Evaluation of participation in discussions on style and interpretation

B. SUMMATIVE ASSESSMENT:
1. Evaluation of participation in public performances
AG 285 - Agricultural Communications

Action Type: Course Revision Major

Effective:

Primary Author: David Baggett

Other Author(s):

CC Representative Approval By:

CC Staff Review By:

Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

CSU Transfer: Requested

Course Data Elements

Credit Type: Requested

Credit Sub-Type: Requested

TOP Code: SAM Code: State Classification: I

Open Entry/Open Exit: No

Work Experience: No

Instructor Load

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These materials are related to the Student Learning Goals for the course because:

These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)
AG 285

I. OVERVIEW
The following information will appear in the 2009 - 2010 catalog

**AG-285 Agricultural Communications** 3 Units

Fundamentals of agricultural communication, including written, electronic, graphic, and oral communication methodologies. Field trips are required. Course is applicable to the associate degree.

II. LEARNING CONTEXT
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. COURSE CONTENT

1. **Required Content:**

   a. Introduction to agricultural communication
      
      i. Types of agricultural media
         
         a. Print media
            
            a. Farm publications
            
            b. State agricultural magazines
            
            c. Livestock and commodity publications
            
            d. Agricultural trade press

         b. Broadcast media
            
            a. Farm radio
            
            b. Agricultural television
               
               a. Information services
               
               b. The Internet

         c. E-mail

         d. Internet services for agriculture

         e. Information competency
            
            a. The use of agricultural marketing in agricultural communication
            
            b. The communication process
a. Communicating a clear message
b. Purposes of messages

ii. Print media and written communication

a. Basics of written communication
b. Graphics
   a. Information graphics
      a. Advantages of using graphics within written documents
      b. Using graphics within documents
      c. Components of an effective graphic
   b. Communicating with color
   c. Photographs
      a. Digital
      b. Manual
d. Charts, graphs, and tables
e. Maps and illustrations
f. Appropriate match of graphic with document type and content

c. Letters
   a. Principles of effective letter writing
      a. Active voice
   b. Letter format and styles
   c. Punctuation
d. Letters of
   a. Persuasion
   b. Inquiry
   c. Complaint
d. Apology
e. Recommendation
f. Policy makers

g. Thank you letters

h. Appreciation

e. Write a business letter

d. Memos
   a. Characteristics of an effective memo
   b. Math components of a memo
   c. Critique sample memos
   d. Write a sample memo

e. Newspaper writing
   a. Choosing a topic
      a. Finding a story
   b. Basic reporting
      a. Organizing the report
   c. Writing a story
      a. Quality lead
      b. Grammar, punctuation and spelling
      c. Accurate and concise language
         a. Economy of words
   d. Article length
   e. Logical sequence of information
   f. Ethics and accuracy
      a. Research and background checks
   g. Appropriate quotations
   d. Writing newspaper articles for publication

iii. Audio
a. Tripods
   a. Using a video camera

iv. Oral Communication
   a. Speaking in public
      a. Fundamentals of public speaking
      b. Composing a speech
         a. Universal outline
      c. Delivering a speech
   b. Product presentations and displays
      a. Farm expositions and other typical uses of display
      b. Poster presentations
         a. Layout, eye appeal, message, and graphics
         b. Using visual aids for emphasis
            a. Guidelines for selecting visual aids
            b. Construction of display
            c. PowerPoint
               a. Designing a slide show
                  a. Using text
                  b. Incorporating color, sound, wallpapers, and graphics
                  c. Sequencing information
               b. Using PowerPoint in conjunction with an oral presentation

v. Electronic communication
   a. E-mail and voicemail
      a. Advantages and disadvantages
      b. Communication etiquette
      c. Sending messages
b. Evaluating websites
   a. Information competency

B. HOURS AND UNITS

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C. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Class lectures using visual aids.
2. Laboratories directed towards achieving course objectives, including photography, video production, and newsletter production.
3. Films
4. Guest speakers.
6. Demonstrations of equipment operation and techniques.
7. Discussion and problem solving in class.
8. Supplemental readings.
9. Collaborative projects, including journalism and video production assignments.
10. Homework extended projects.

D. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS
   Time spent on coursework in addition to hours of instruction (lecture hours)
   a. Daily reading of materials
   b. Weekly research and collection of data
   c. Conduct weekly interviews
   d. Write and edit one newspaper article, including a picture, per term

2. EVIDENCE OF CRITICAL THINKING
   Assignments require the appropriate level of critical thinking
   a. You will participate in groups of 12 to produce and film a 10- minute talk show. During the
course of this activity, you will: 1) select and research a current local, agricultural-related topic, develop a set of interview questions based upon that research, and develop roles typical of the stakeholders affected; 2) practice film production techniques in the MJC television studio, including the role of the technical and floor director, camera operation, tape and character generation; and 3) produce a 10 minute talk show. You will be evaluated based upon their overall involvement in the activity.

b. Write an abstract of an agricultural journal article that the student selects. The article should be on sufficient length, interest and importance to provide a quality educational experience. The summary should identify the author’s central research question, thesis statement, key problem, issues or findings, recommendations, and/or conclusions. The abstract should be not longer than 300 words.

c. Create a PowerPoint presentation on a subject of choice. The presentation should have a logical format, be graphically interesting and cover the subject completely. The length of the presentation can vary; however, it should typically consist of 6 to 8 slides.

E. TEXTS AND OTHER READINGS (TYPICAL)


III. DESIRED LEARNING

A. COURSE GOAL

As a result of satisfactory completion of this course, the student should be prepared to:

Develop the fundamentals skills of agricultural communication, including written, electronic, graphic, and oral communication methodologies.

B. STUDENT LEARNING GOALS

Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. Required Learning Goals

Upon satisfactory completion of this course, the student will be able to:

a. List and describe the primary types of agriculture communications.

b. Define the communications process.

c. Identify the fundamentals of written communication.

d. Identify and discuss the use of graphics in various types of print media.
e. Discuss the use of color to enhance graphic communication.

f. Identify proper photographic techniques.

g. Use digital and manual cameras to take photographs.

h. Match the appropriate graphic with document type and content.

i. Identify and practice the principles of effective business letter writing.

j. Identify the components of an effective memo.

k. Write a sample memo.

l. Discuss organization and writing techniques used in newspaper journalism.

m. Participate as a journalistic team member to write a newspaper article for publication.

n. Write a press release for a college event.

o. Identify and discuss newsletter layout, design, and publishing techniques.

p. Identify and discuss newsletter layout, design, and publishing techniques.

q. Write, edit and tape record a radio advertisement for an agricultural event.

r. Identify video design and production techniques.

s. Practice video camera operation.

t. Participate in a production team to produce a short documentary video.

u. Identify the components of effective public speaking.

v. Organize and orally present information using PowerPoint or poster mediums.

w. Use the Internet to compose and deliver an e-mail message.

IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT

1. Competency of student in applying techniques and theory to complete laboratory and class assignments and activities, i.e. newsletters, video, photography, letters and memos, PowerPoint presentation, and newspaper article.

2. In and out of class, written assignments that relate to, and apply, to agriculture communications, including:
   a. Composing e-mail, newsletter articles, letters, and memos.
   b. Writing and editing newspaper articles.
   c. Writing and editing radio and video scripts.

3. In class objective examinations that test for Agriculture Communication procedures and definitives and major course concept.

4. Supplementary activities
   a. Participation in classroom activities that address current agricultural communications theory and practice.
b. Participation in field trips.
c. Participation in group projects

B. **SUMMATIVE ASSESSMENT**

1. Final examination
2. Final project
Proposal Impact

AG 285 Agricultural Communications
**Course Revision Major**
David Baggett

Courses

1. AGEC 220 *Active*
2. AGEC 220 *Pending*

Cross Listed Courses

Programs

1. Agriculture Laboratory Technician Certificate of Achievement *New Program*
2. Agriculture Laboratory Technician A.S. Degree *New Program*
3. Agriculture: Sales, Service A.S. Degree *New Program*
4. Agriculture: Sales, Service Technician Certificate of Achievement *New Program*
5. Food Processing Certificate of Achievement *New Program*
6. Food Processing A.S. Degree *New Program*
7. Forestry Certificate of Achievement *New Program*
8. Forestry A.S. Degree *New Program*
9. Forestry Certificate of Achievement *New Program*
10. Forestry A.S. Degree *New Program*
11. Landscape and Park Maintenance Certificate of Achievement *New Program*
12. Landscape and Park Maintenance Certificate of Achievement *New Program*
13. Mechanized Agriculture Technician Certificate of Achievement *New Program*
14. Nursery Production Certificate of Achievement *New Program*
15. Recreational Land Management Certificate of Achievement *New Program*
16. Recreational Land Management A.S. Degree *New Program*
Modesto Junior College
AGGE 146 Course Data Summary Report

AGGE 146 - Agriculture, Environment and Society
Action Type: Course Revision Minor
Effective:
Primary Author: David Baggett
Other Author(s):
CC Representative Approval By:
CC Staff Review By:
Division Dean Approval By:

3 Units

Rationale for Course Action

Transfer and GE Status
CSU Transfer: Requested
UC Transfer: Requested
CSU-GE Category: CSU-GE - D7 Requested

Course Data Elements
Credit Type: Requested
Credit Sub-Type: Requested
TOP Code: SAM Code: State Classification: I
Open Entry/Open Exit: No Work Experience: No

Instructor Load

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These materials are related to the Student Learning Goals for the course because:

These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)

Curriculum Committee Agenda 25 February 17, 2009
Modesto Junior College
Course Outline of Record
AGGE 146

I. OVERVIEW
The following information will appear in the 2009 - 2010 catalog

AGGE-146 Agriculture, Environment and Society 3 Units

The sociology of agriculture presented through an examination of relationships between societies and their environments, economics, and agriculture. Emphasis on the analysis of agriculture's use of technology and the corresponding impact on the environment, economy and society. Field trips might be required. Course is applicable to the associate degree. General Education: CSU-GE - D7

II. LEARNING CONTEXT
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. COURSE CONTENT

1. Required Content:

   a. Selected historical view of the relationship between agriculture, the environment and society

      i. Definitions of terms: agriculture, society, environment

         a. Goals of agriculture

         b. Function of social institutions

         c. Components of an ecosystem

      ii. Relationship between early man and the cultivation of crops and domestication of livestock and the connection between the natural sciences, social sciences, economics, and agriculture

      iii. Selected highlights of human history with an emphasis on the types of social, political, and economic systems, climate, primary agricultural enterprises and quality of life

      iv. Selected significant agricultural developments in the United States

         a. Historical patterns of change in the structure of U.S. agriculture

            a. Significant Federal agricultural legislation

         b. Agriculture, environment and the society of Native Americans

      v. Development of California agriculture

      vi. Agriculture and the world economy

         a. Basic needs, income and development
b. Food as a weapon

vii. Development of production and processing methods
   a. Soil preparation
   b. Cultural practices
   c. Harvesting
   d. Food handling and processing
   e. Transportation and distribution systems

viii. U.S. agricultural enterprises and labor
   a. Relationship between immigration, agriculture and politics
   b. Reduction of agricultural labor force
   c. Non-farm organizations and agriculture

ix. Development of agriculture and its effect on the environment
   a. Impact of agriculture on soils
   b. Impact of agriculture on air quality
   c. Agricultural pest control and environment management

x. Changing nature of rural society
   a. Urban influences
   b. Decline in numbers of family farms
   c. Urbanization of rural areas
   d. Rural poverty
   e. Health care
   f. Women and agriculture

xi. Ethical issues in agriculture
   a. Social ethics, animal rights and animal welfare
   b. Corporate farming
   c. Biotechnology

xii. Future trends in agriculture
   a. New sources of food for the world
b. Sustainable agriculture  
c. Integrated pest management  
d. Land-use planning  

B. HOURS AND UNITS  

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3 Units

C. METHODS OF INSTRUCTION (TYPICAL)  
Instructors of the course might conduct the course using the following method:

1. Class lectures.  
2. Films  
3. Guest speakers.  
4. Models  
6. Case studies.  
7. Discussion.  
8. Supplemental readings.  
9. Assignments

D. ASSIGNMENTS (TYPICAL)  
1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS  
Time spent on coursework in addition to hours of instruction (lecture hours)

   b. Daily collection of related news.  
   c. Weekly research activities.  
   d. Preparation for final exam.  

2. EVIDENCE OF CRITICAL THINKING  
Assignments require the appropriate level of critical thinking

   a. Define, collect, analyze and evaluate a current agriculture/environmental/social issue through conducting original qualitative research. Siedman said, “At the root of in-depth interviewing is an interest in understanding the experience of other people and the meaning they make of their experience”. Students will plan and conduct a qualitative interview of someone involved
with, or affected by, an agriculture-related issue.

b. A research question should be developed prior to identifying an interviewee. Research questions are written after the subject has been contacted and an interview arranged. The interview session should last approximately 15 minutes.

The document should minimally include:
- Introduction to the interview
- Purpose of the interview
- Why the student choose this person and subject
- Background of interviewee
- Relevant historical notes, or background information
- Description of methodology and list of questions, if applicable
- Description of interview process
- Interview - Tell the story as the data was directed, collected, an interpreted
- Conclusion
- Lesson learned
- Sources

E. TEXTS AND OTHER READINGS (TYPICAL)


4. Other: Instructor-generated handouts


III. DESIRED LEARNING

A. COURSE GOAL

As a result of satisfactory completion of this course, the student should be prepared to:

Describe the significance of agriculture to the history of mankind and how agriculture impacts today's societies.

B. STUDENT LEARNING GOALS

Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. Required Learning Goals

Upon satisfactory completion of this course, the student will be able to:
a. Describe the historical and geographical relationship between agriculture, the environment and a given society.

b. Discuss the development of production, processing, and distribution methods of the various agricultural products.

c. Discuss the development of production, processing, and distribution methods of the various agricultural products.

d. Identify the historical relationship between immigration, labor, agriculture, and politics in the United States with special emphasis in California.

e. Outline the development of agriculture and its effect on the environment.

f. Describe the changing nature of rural society.

g. Discuss the roles and contributions that California’s ethnic and cultural populations have made to agriculture.

h. Identify the nature of current ethical issues in agriculture.

i. Interpret future trends in agriculture.

j. Define, collect, analyze, and evaluate data pertaining to a current agricultural-environmental-social issues.

IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT

1. Evaluation of case study analysis.

2. Evaluation of completed worksheets composed of targeted questions related to the development of agriculture and its effects on the environment over time, including drawing evolutionary timelines of crop development, production, and processing.

3. Evaluation of group research presentations.

4. Evaluation of original qualitative research.

5. Evaluation of participation in weekly small group discussions.

6. Evaluation of student journals.

B. SUMMATIVE ASSESSMENT

1. Evaluation of final essay exam.
Proposal Impact

AGGE 146 Agriculture, Environment and Society
**Course Revision Minor**
David Baggett

Courses

Cross Listed Courses

Programs

1. Soil Science A.S. Degree *New Program*
To: Curriculum Committee
From: L. Maki – Department of Chemistry
Re: Chemistry programmatic changes

After looking at the chemistry courses as a whole, the chemistry department has determined that our prerequisites need to be modified to offer the greatest student success as well as completion of the program. The chemistry courses are divided into two types of courses: Allied-Health and Science Majors.

The prerequisite changes for both Allied-Health courses and Science major courses revolve around the changes to the CHEM 142 curriculum.

1) Allied-Health Chemistry courses (CHEM 144)

CHEM 142 is currently listed as a prerequisite for CHEM 144 (2nd semester allied-health course). Presently, there is no lab for CHEM 142 and therefore it does not adequately prepare students for success in CHEM 144. Our current request is to have CHEM 143 as the prerequisite for CHEM 144.

2) Science Major chemistry courses (CHEM 101)

The prerequisite change for CHEM 101 is two tiered.

First, CHEM 143 is currently listed as a prerequisite for CHEM 101. This prerequisite was added because as a department we are very low on faculty and unable to teach all courses. In order to ensure that students had some chemistry before entering CHEM 101, we allowed students to take the allied-health course (CHEM 143) first. Because of a lower math prerequisite, CHEM 143 did not effectively prepare the students for the rigor of CHEM 101. We are requesting to remove CHEM 143 as a prerequisite for CHEM 101.

Secondly, requiring all students (including students who have taken high school chemistry) to take CHEM 142 prior to taking CHEM 101 does not allow students to complete the required science courses in 2 years. The numbers in our final chemistry series (CHEM 112/CHEM 113) have shown a decrease in the last few years due to this change in curriculum. Because it is difficult to determine the level of the high school courses, we are requesting that the prerequisite be CHEM 142 or High School Chemistry with a B or better. The math prerequisite for CHEM 101 is unchanged.
Rationale for Course Action

Transfer and GE Status

CSU Transfer: Requested
UC Transfer: Requested
CSU-GE Category: CSU-GE - B1, B3 Requested
IGETC Category: IGETC - 5A Requested

Course Data Elements

Credit Type: Requested
Credit Sub-Type: Requested
TOP Code: SAM Code: State Classification: A
Open Entry/Open Exit: No Work Experience: No

Instructor Load

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<td>Disc</td>
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Material Fees

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These materials are related to the Student Learning Goals for the course because:

These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)
Enrollment Restrictions & Advisories

Advisory: or
Prerequisite: MATH 90
I. OVERVIEW
The following information will appear in the 2009 - 2010 catalog

CHEM-101 General Chemistry 1  5.33 Units

Prerequisite: Satisfactory completion of MATH 90 or equivalent placement by MJC assessment process.
Advisory: Before enrolling in this course, students are strongly advised to complete CHEM 142 with a grade of C or better or complete High School Chemistry with a grade of B or better.

Principles of chemistry emphasizing measurements and significant figures, chemical reactions, stoichiometry, gas laws and theory, thermodynamics, atomic structure and quantum mechanics, periodic properties, chemical bonding, molecular structure, intermolecular attractions and properties of liquids and solids, and properties of solutions. Field trips are not required. Course is applicable to the associate degree. General Education:
CSU-GE - B1, B3
IGETC Category: IGETC - 5A

II. LEARNING CONTEXT
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. COURSE CONTENT

1. Required Content:
   
a. Matter and Measurement
      i. Elements, compounds and mixtures
      ii. States of matter
      iii. Uncertainty in measurement, precision, accuracy and types of error.
      iv. Dimensional analysis as a problem-solving tool
      v. The Scientific Method

b. The Nature of the Atom
   i. The historical development of modern atomic theory
   ii. Fundamental particles comprising the atom
   iii. Isotopes and atomic weight
   iv. The periodic table; properties of metals and nonmetals
   v. Chemical formulas and the representation of chemical structures
   vi. Molecular compounds: Properties and bonding
   vii. Ionic compounds: Properties and bonding
viii. The nomenclature of binary covalent compounds, ionic compounds and acids

c. Chemical Reactions and Stoichiometry
   i. Identifying types of chemical reactions by inspection of equations.
   ii. Balancing chemical equations
   iii. Determining the molar masses of compounds
   iv. Calculating percentage composition by mass from chemical formulas
   v. The mole, Avagadro’s Number and associated calculations
   vi. Determination of empirical and molecular formulas from combustion data and from percent mass composition
   vii. Quantitative stoichiometric relationships including limiting reactant and percentage yield calculations

d. Reactions in the Aqueous Medium and Solution Stoichiometry
   i. Properties of strong and weak electrolytes; properties of nonelectrolytes
   ii. Precipitation reactions in aqueous solutions, exchange reactions
   iii. Definitions and properties of acids and bases, neutralization reactions.
   iv. The production of gaseous products from exchange reactions
   v. Oxidation-reduction reactions, oxidation numbers, displacement reactions and the activity series, balancing reduction-oxidation reaction reactions by the method of half reactions
   vi. Quantitative treatment of solution concentration
   vii. Solution stoichiometry and chemical analysis including titrations

e. Thermodynamics
   i. Definitions of work, energy and heat including appropriate SI units
   ii. The First Law of Thermodynamics
   iii. State functions
   iv. Endothermic and exothermic processes
   v. Enthalpy and Enthalpy of reaction; Hess’s Law
   vi. Calorimetry

f. The Electronic Structure of Atoms
   i. Waves and wave properties
   ii. Planck and quantum theory
iii. Important historical experiments in the development of modern atomic theory
iv. The Bohr Theory and atomic emission spectra
v. Limits of the Bohr theory; Heisenberg and de Broglie
vi. Wave mechanics, the theories of Schroedinger, Hund and Pauli
vii. Electron configurations of atoms and ions
viii. Orbital diagrams
ix. Electron configurations and the periodic table

g. Periodic Properties of the Elements
i. Effective nuclear charge
ii. The sizes of atoms and ions
iii. Ionization energies
iv. Electron affinities
v. Relating properties of elements to the periodic table

h. Basic Concepts of Chemical Bonding
i. Lewis structures and the octet rule
ii. The energetics of ionic bond formation; the Born-Haber Cycle
iii. Lewis structures and covalent compounds and ions, including multiple bonds
iv. Bond polarity and electronegativity
v. Molecular polarity and dipole moments
vi. Resonance structures and formal charge
vii. Bond enthalpy and bond strength
viii. Calculation of heats of reaction using bond enthalpies

i. Molecular Geometry and Bond Theories
   i. VSEPR theory and molecular geometry
   ii. Molecular shape and molecular geometry
   iii. Valence bond theory
   iv. Orbital hybridization and covalent bond formation
   v. Molecular orbital theory

j. Gases
i. Characteristics of gases

ii. Gas pressure, manometers and barometers

iii. Gas laws, including Boyle’s Law, Charles’s Law, Gay-Lussac’s Law and Avagadro’s Hypothesis

iv. The Ideal Gas Equation including quantitative relationships

v. Gas mixtures, Dalton’s Law of Partial Pressures

vi. Kinetic Molecular Theory

vii. Gaseous diffusion and effusion; Graham’s Law

viii. The behavior of real gases, the van der Waals Equation

k. Intermolecular Forces

i. Properties of the solid, liquid and gaseous phases

ii. London Dispersion Forces, Dipole-Dipole Forces and Hydrogen Bonding

iii. Unit cells

l. Solutions

i. Solubility and intermolecular forces

ii. Solubility, pressure, and temperature

iii. Concentration units (molality, percent by mass, ppb, ppt, ppm, mole fraction)

2. **Required Lab Content:**

Lab Content (Typical Labs include):

a. Density, Accuracy, Precision, and Graphing

b. Quantitative Precipitation

c. Electrical Conductivity and Electrolytes

d. Quantitative Solution Chemistry

e. Thermochemistry

f. Spectroscopy of the Cobalt(II) Ion

g. Lewis Structures and Molecular Models

h. Gas Law Studies

i. Cooling Curves and Crystal Structures
j. Water Purification and Analysis
k. Acids and Bases: Carbonate Analysis
l. Synthesis of Copper(II) Glycinate
m. Standardization of Thiosulfate
n. Analysis of Bleach and Copper(II) Glycinate

B. ENROLLMENT RESTRICTIONS

1. Prerequisites

Satisfactory completion of MATH 90 or equivalent placement by MJC assessment process.

2. Advisories

Before enrolling in this course, students are strongly advised to complete CHEM 142 with a grade of C or better or complete High School Chemistry with a grade of B or better.

3. Requisite Skills

Before entering the course, the student will be able to:
a. Graph lines and find the equation of a line, given sufficient information.
b. Effectively use function notation to describe mathematical relationships.
c. Solve systems of linear equations in two or three variables by choosing the most effective method for the given problem.
d. Solve quadratic equations with real and complex solutions by completing the square and using the quadratic formula.
e. Add, subtract, multiply, divide, or compose two given functions.
f. Find the inverse of a given function.
g. Solve exponential and logarithmic equations.
h. Simplify expressions using the properties of logarithms.
i. Apply algebraic techniques to solve problems in various mathematical disciplines.
j. Solve chemical problems using unit analysis.
k. Write the formula equation, total ionic equation, and net ionic equation for a chemical reaction.
l. Name inorganic compounds and derive chemical formulas from names.
m. Understand uncertainty in measurements by using significant figures.
n. Use all three temperature scales and convert between them.

C. HOURS AND UNITS

5.33 Units

<table>
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<th>TERM HOURS</th>
<th>UNITS</th>
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</table>

Curriculum Committee Agenda
Division: Science, Math & Engineering

February 17, 2009
Printed on: 11/02/2009 02:45 PM
D. METHODS OF INSTRUCTION (TYPICAL)

_Instructors of the course might conduct the course using the following method:_

1. Relevant material is presented through class lectures and lecture/laboratory demonstrations

2. Students perform laboratory experiments that reinforce and expand upon concepts discussed in lecture

3. A portion of the lecture or lecture discussion may be presented online. Discussion boards, quiz tools and other online material may be used to enhance the face-to-face lecture. Laboratory and examinations must be given face-to-face.

E. ASSIGNMENTS (TYPICAL)

1. **EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS**
   
   _Time spent on coursework in addition to hours of instruction (lecture hours)_

   a. Weekly reading assignments from lecture text

   b. Chapter Review homework and/or recommended problems

   c. Weekly preparation for laboratory including reading and pre-laboratory assignments

   d. Complete record of all experimental work performed, and analysis of results obtained

2. **EVIDENCE OF CRITICAL THINKING**
   
   _Assignments require the appropriate level of critical thinking_

   a. A 519.9 gram piece of copper is heated to 621 °C and quickly added to a 101.0 gram piece of ice at -19.90 °C in a well-insulated flask that is immediately sealed. (a) If there is no loss of energy to the surroundings, what will the final temperature of this system be? (b) What phases of water will be present and in what quantities when this system reaches its final temperature?

   b. Given that iron corrodes in the presence of oxygen to form rust, which you can assume for simplicity is iron(III) oxide, calculate the maximum mass of iron(III) oxide that can be produced when a cubic block of iron of side 2.717 cm reacts with 51.99 liters of oxygen at STP. Iron has a body-centered cubic structure and the atomic radius of iron is 124 pm. The reaction takes place at STP.

F. TEXTS AND OTHER READINGS (TYPICAL)


2. **Manual:** Murov, Steve. _Experiments in General Chemistry (Lab Manual)_ . Brooks/Cole

3. **Other:** Student must purchase goggles from MJC Bookstore (Fog Gard Plus, ANSI Z87.1-1989, SEI Certified)

III. DESIRED LEARNING

A. COURSE GOAL

Division: Science, Math & Engineering
As a result of satisfactory completion of this course, the student should be prepared to:

Use problem solving techniques for chemical problems and understand the principles of chemistry including measurements and significant figures, chemical reactions, stoichiometry, gas laws and theory, thermodynamics, atomic structure and quantum mechanics, periodic properties, chemical bonding, molecular structure, intermolecular attractions and properties of liquids and solids, and properties of solutions. The student will be prepared to succeed in subsequent chemistry courses and to apply this knowledge in other science courses.

B. STUDENT LEARNING GOALS

Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. Required Learning Goals

Upon satisfactory completion of this course, the student will be able to:

a. Differentiate between mixtures and pure substances. Solve complex problems using the principles of dimensional analysis. Define and utilize the scientific method.

b. Describe the development of modern atomic theory. Derive the number of protons, neutrons and electrons in an atom from symbolic data. Calculate the atomic weight of an element using natural abundance data. Classify compounds as ionic or molecular by referring to the chemical formula. Name chemical compounds given the correct chemical formula; derive correct chemical formulas from compound names.

c. Identify the type of a chemical reaction from the chemical equation. Determine the molar mass of a compound from the chemical formula. Given the formula of a compound, calculate the percentage composition by mass. Determine a chemical formula from mass data. Perform calculations related to the mole concept. Determine the empirical formula of a compound given combustion analysis data. Perform stoichiometric calculations using chemical equations.

d. Differentiate between electrolytes and nonelectrolytes by referring to chemical formulas. Classify reactions by type by referring to balanced chemical equations. Differentiate between acids and bases as well as the properties of acids and bases. Determine the pH, pOH, [H3O+], and [OH-] for strong acids and/or bases – including correct significant figures. Complete and balance the equations that describe decomposition, synthesis, displacement and exchange reactions. Convert molecular equations to the corresponding total ionic and net ionic equations.

e. Identify and balance reduction-oxidation equations. Employ balanced chemical equations to perform quantitative calculations for reactions between solutions.

f. Define terms related to first law of thermodynamics. Employ the concept of state functions to solve thermochemical problems. Solve quantitative problems by the use of Hess’s Law. Demonstrate understanding of the concept of calorimetry by solving appropriate thermochemical problems.

g. Demonstrate understanding of the nature of waves by both verbal description and solving quantitative problems. Solve problems that involve the concept of quantization of energy. Solve problems that relate to the Bohr Theory of the atom. Provide verbal descriptions and discuss the important results of the theories of Schroedinger, Hund and Pauli. Be able to correctly predict the electron configuration of atoms and ions and draw the corresponding orbital diagrams by referring to the periodic table.

h. Describe the concept of effective nuclear charge and explain the effect of this phenomenon on the properties of atoms. Predict the relative sizes, ionization energies and electron affinities of atoms and ions based on the position of the element on the periodic table.

i. Draw correct Lewis structures for elements and ions including those that violate the octet rule. Predict relative values of lattice energy for ionic compounds. Provide (draw) correct Lewis structures for molecules and ions. Predict the relative bond polarity for atoms connected by covalent bonds. Explain the concept of electronegativity and apply this principle to the determination of the polarity of chemical bonds and molecules. Provide resonance structures for ions and molecules. Use bond enthalpies to estimate enthalpy changes for chemical reactions.

j. Employ VSEPR theory to predict the geometry and shape of molecules and ions. Define the
concept of valence bond theory and use valence bond theory and the concept of orbital hybridization to describe the bonding patterns in molecules and ions. Employ molecular orbital theory to predict the bond order in binary molecules.

k. Describe the characteristic properties of the gaseous state. Demonstrate understanding of the concept of gas pressure by providing verbal descriptions and solving quantitative problems. Provide definitions of the following gas laws: Boyle’s Law, Gay-Lussac’s Law, Charles’s Law and Avagadro’s Hypothesis and also solve quantitative problems that relate to these laws. Solve quantitative problems related to the Ideal Gas Equation. Solve quantitative problems employing Dalton’s Law of Partial Pressures. Define the terms effusion and diffusion; solve quantitative problems involving these concepts. Demonstrate understanding of the concept of Kinetic Molecular Theory by relating these concepts to observable gas properties. Use the van der Waals Equation to predict the properties of real gases. Demonstrate an understanding of the van der Waals constants.

l. Compare and contrast the differences between the solid, liquid and gaseous phases of matter. Identify the three types of intermolecular forces and, by inspection of chemical structures, predict which of these forces will be present in a particular molecule.

m. Perform calculations based upon the unit cell of a crystalline solid metal or ionic solid that exhibit a simple cubic, face-centered cubic, or body-centered cubic unit cell.

n. Calculate the molality and osmolality of a solution. Determine the freezing point, boiling point or vapor pressure of a mixture. Determine the osmotic pressure of a solution. Determine the solubility of a gas in a liquid.

2. **Lab Learning Goals**
   
   Upon satisfactory completion of the lab portion of this course, the student will be able to:
   
a. Demonstrate safe practice in the chemistry laboratory, including measures to prevent/control fire, explosion, contact with and/or intake of hazardous chemicals or fumes.

b. Compare and determine the accuracy and precision of different measuring devises and record data to correct significant figures.

c. Demonstrate the capacity to perform basic separation techniques such as: evaporation, gravity filtration, vacuum filtration chromatography, and/or distillation.

d. Determine experimentally the empirical formula of a compound which may include hydrates.

e. Determine the percent yield and/or recovery based on the theoretical yield, including examples of limiting reactant.

f. Classify and balance reactions based on observations. This will include predicting products and writing the net ionic equations.

g. Use models to determine the Lewis structure and the geometric shape of compounds.

h. Demonstrate the capacity to perform a titration, including standardization, using the stoichiometry of the equation to calculate an unknown quantity.

i. Create a cooling curve and use it to determine the melting point with and without impurities.

j. Demonstrate the capacity to predict and determine experimentally the pH of acids and bases.

k. Demonstrate gas law calculations when collecting a gas over water. The student shall also show understanding of Boyle’s, Charles’ and Avogadro’s law.

l. Demonstrate the ability to use a coffee cup calorimeter to determine the heat lost or gained by a system.
IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT
   1. Assigned homework and/or quizzes given throughout the semester
   2. Examinations given at regular intervals throughout the semester
   3. Identification of laboratory unknowns
   4. Laboratory reports required after completion of each experiment
   5. Observation of laboratory technique and safety

B. SUMMATIVE ASSESSMENT
   1. A comprehensive final examination
METHOD OF INSTRUCTION

MIXED MODALITIES/HYBRID COURSE Some, but not all, class time is replaced by distance education. Students must have regular access to a computer which is connected to the Internet. Course has one or more on-campus meetings.

The lecture and/or lecture discussions may be offered online (up to 60% of the course) NO portion of the Laboratory component will be offered online (0% of the lab). All exams must be proctored and preferable given on campus.

TYPE OF TEACHING MODALITIES

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<td>E-mail</td>
<td>Web or Computer-based Activities</td>
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<tr>
<td>Asynchronous Discussion</td>
<td>Reading Online Materials</td>
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<tr>
<td>Synchronous Chat</td>
<td>Viewing video/audio Materials</td>
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<tr>
<td>Viewing Text-based Materials</td>
<td>Quizzes, Self-test and Exams</td>
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COURSE ANALYSIS

1. Describe how the teaching modalities checked on front side will facilitate instructor/student contact.

Allowing students to participate in an asynchronous discussion allows for a more open discussion and will likely increase instructor-student interaction. The addition of Computer or Web-based activities allows for faculty to require mastery of certain skills. Instructors are able to observe the progress of the students and can modify lecture or office hour time according to student needs.

2. Are the methods of evaluation different from those listed on the approved course outline? If so, in what ways do they differ?

No.
Describe how the methods selected will allow students to meet the student learning goals of the course.

Students are able to master material with web or computer-based activities. Lectures online provide students multiple attempts at viewing information. There is an increased interaction between student and instructor and student and other students with the use of discussion boards and chat rooms.
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<td>Course Title</td>
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<tr>
<td>Proposed as Honors Course</td>
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<tr>
<td>Distance Ed Addendum</td>
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<td>Cross Listed Course</td>
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<td>Catalog Description</td>
<td>Principles of chemistry emphasizing measurements and significant figures, chemical reactions, stoichiometry, gas laws and theory, thermodynamics, atomic structure and quantum mechanics, periodic properties, chemical bonding, molecular structure, intermolecular attractions and properties of liquids and solids, and properties of solutions.</td>
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<tr>
<td>Why is this course being proposed or modified?</td>
<td>Periodic Review for a standard course and making significant changes to prerequisites and units.</td>
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**Proposal Information**

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<td>Earlier Implementation</td>
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**Expedited Approval Information**

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<td>Why are you requesting expedited approval?</td>
<td>To ensure student progression w/in program</td>
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<tr>
<td>Provide below your written rationale demonstrating imminent need</td>
<td>Prerequisite: The program currently requires 5 semesters to complete. This is not appropriate for a 2 year degree. Units: Establish compliance with Title V - section 55002.5</td>
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Proposal Impact

CHEM 101 General Chemistry 1
**Periodic Review**
Laura Maki

Courses

1. BIO 101 *Pending*
2. BIO 101 *Active*
3. CHEM 102 *Launched*
4. CHEM 102 *Active*
5. CHEM 103 *Active*
6. CHEM 103 *Launched*
7. ENGR 130 *Active*

Cross Listed Courses

Programs

1. Agriculture Laboratory Technician Certificate of Achievement *New Program*
2. Agriculture Laboratory Technician A.S. Degree *New Program*
3. Construction Management A.S. Degree *New Program*
4. Engineering A.S. Degree *New Program*
5. Engineering Technology A.S. Degree *New Program*
6. Physical Science A.S. Degree *New Program*
CHEM 102 Course Data Summary Report

CHEM 102 - General Chemistry 2
Action Type: Periodic Review
Effective:
Primary Author: Laura Maki
Other Author(s):
CC Representative Approval By:
CC Staff Review By:
Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

CSU Transfer: Requested
UC Transfer: Requested
CSU-GE Category: CSU-GE - B1, B3 Requested
IGETC Category: IGETC - 5A Requested

Course Data Elements

Credit Type: Requested
Credit Sub-Type: Requested
TOP Code: SAM Code: State Classification: A
Open Entry/Open Exit: No Work Experience: No

Instructor Load

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These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)
Enrollment Restrictions & Advisories

Prerequisite: CHEM 101
I. **OVERVIEW**  
The following information will appear in the 2009 - 2010 catalog

**CHEM-102 General Chemistry 2**  
5.33 Units  

**Prerequisite:** Satisfactory completion of CHEM 101.

Continuation of Chemistry 101 emphasizing kinetics, solutions, equilibrium, acids and bases,  
electrochemistry, thermodynamics, nuclear chemistry, coordination chemistry and descriptive chemistry.  
Field trips are not required. Course is applicable to the associate degree. General Education:  
CSU-GE - B1, B3  
IGETC Category: IGETC - 5A

II. **LEARNING CONTEXT**  
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the  
goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

   a. Kinetics
      i. Factors affecting the rate of reaction  
      ii. Concentration effects and rate laws  
      iii. Collision theory, temperature effects and the Arrhenius equation  
      iv. Mechanisms  
      v. Homogeneous and heterogeneous catalysts

   b. Equilibrium
      i. Dynamic equilibria and the mass action expression  
      ii. Equilibrium calculations  
      iii. LeChatelier’s Principle

   c. Aqueous Equilibria
      i. Bronstead-Lowery acid and bases and conjugates  
      ii. Strong and weak acids and bases  
      iii. pH and equilibrium calculations  
      iv. Molecular structure and acid and base properties  
      v. Titration curves
vi. Buffers

vii. Polyprotic acids

viii. Solubility equilibria and factors affecting solubility

ix. Equilibria of complex ions in aqueous solutions.

x. Selective precipitation of metal ions.

d. Thermodynamics
   i. Second and third laws of thermodynamics
   ii. Spontaneity, entropy and Gibbs Free-Energy
   iii. Equilibrium and Gibbs Free-Energy

e. Electrochemistry and Oxidation-Reduction
   i. Half-Reactions and redox equations
   ii. Voltaic cells, the Nernst Equation, and Gibbs Free-Energy
   iii. Electrolysis
   iv. Corrosion

f. Descriptive Chemistry
   i. Sources of oxygen, nitrogen, carbon, halogens, inert gases, silicon, phosphorus, and sulfur
   ii. Uses of oxygen, nitrogen, carbon, halogens, inert gases, silicon, phosphorus, and sulfur

g. Nuclear Chemistry
   i. Nuclear reactions
   ii. Binding-energy changes for nuclear processes
   iii. Half-life of nuclides
   iv. Applications

h. Coordination Compounds
   i. Complex ions and Coordination Compounds
   ii. Geometry

i. Introductory Organic Chemistry
   i. Definition of organic chemistry
   ii. Naming simple alkanes
iii. Functional group

2. Required Lab Content:

Lab Content (Typical Labs include):

a. Check-in, Safety
b. Dropper Calibration
c. Hydrolysis – Detecting Salts of Weak Acids
d. Introduction to Excel (or other Spreadsheet)
e. Rates of Reactions
f. Equilibrium of Complex Ion
g. Acid/Base Titration Curves
h. Qualitative Analysis-Group A Cations (Na⁺, K⁺, NH₄⁺, Sr²⁺, Zn²⁺, Al³⁺, Sn⁴⁺)
i. Qualitative Analysis-Group B Cations (Mg²⁺, Mn²⁺, Co²⁺, Cu²⁺, Fe³⁺, Ca²⁺)
j. Qualitative Analysis-General Cation (Group A and B)
k. Qualitative Analysis-Anions (I⁻, Br⁻, Cl⁻, NO₃⁻, CO₃²⁻, SO₃²⁻, SO₄²⁻, PO₄³⁻, BO₂⁻, C₂H₃O₂⁻)
l. Qualitative Analysis-Single Salt

B. ENROLLMENT RESTRICTIONS

1. Prerequisites

Satisfactory completion of CHEM 101.

2. Requisite Skills

Before entering the course, the student will be able to:

a. Differentiate between mixtures and pure substances. Solve complex problems using the principles of dimensional analysis

b. Describe the development of modern atomic theory. Derive the number of protons, neutrons and electrons in an atom from symbolic data. Calculate the atomic weight of an element using natural abundance data. Classify compounds as ionic or molecular by referring to the chemical formula. Name chemical compounds given the correct chemical formula; derive correct chemical formulas from compound names.

c. Identify the type of a chemical reaction from the chemical equation. Determine the molar mass of a compound from the chemical formula. Given the formula of a compound, calculate the percentage composition by mass. Determine a chemical formula from mass data. Perform calculations related to the mole concept. Determine the empirical formula of a compound given combustion analysis data. Perform stoichiometric calculations using chemical equations.

d. Differentiate between electrolytes and nonelectrolytes by referring to chemical formulas. Classify reactions by type by referring to balanced chemical equations. Differentiate between acids and bases as well as the properties of acids and bases. Complete and balance the equations that
describe decomposition, synthesis, displacement and exchange reactions. Convert molecular equations to the corresponding total ionic and net ionic equations.

e. Identify and balance reduction-oxidation equations. Employ balanced chemical equations to perform quantitative calculations for reactions between solutions.

f. Define terms related to first law of thermodynamics. Employ the concept of state functions to solve thermochemical problems. Solve quantitative problems by the use of Hess’s Law. Demonstrate understanding of the concept of calorimetry by solving appropriate thermochemical problems.

g. Demonstrate understanding of the nature of waves by both verbal description and solving quantitative problems. Solve problems that involve the concept of quantization of energy. Solve problems that relate to the Bohr Theory of the atom. Provide verbal descriptions and discuss the important results of the theories of Schroedinger, Hund and Pauli. Be able to correctly predict the electron configuration of atoms and ions and draw the corresponding orbital diagrams by referring to the periodic table.

h. Describe the concept of effective nuclear charge and explain the effect of this phenomenon on the properties of atoms. Predict the relative sizes, ionization energies and electron affinities of atoms and ions based on the position of the element on the periodic table.

i. Draw correct Lewis structures for elements and ions. Predict relative values of Lattice energy for ionic compounds. Provide (draw) correct Lewis structures for molecules and ions. Predict the relative bond polarity for atoms connected by covalent bonds. Explain the concept of electronegativity and apply this principle to the determination of the polarity of chemical bonds and molecules. Provide resonance structures for ions and molecules. Use bond enthalpies to estimate enthalpy changes for chemical reactions.

j. Employ VSEPR theory to predict the geometry and shape of molecules and ions. Define the concept of valence bond theory and use valence bond theory and the concept of orbital hybridization to describe the bonding patterns in molecules and ions. Employ molecular orbital theory to predict the bond order in binary molecules.

k. Describe the characteristic properties of the gaseous state. Demonstrate understanding of the concept of gas pressure by providing verbal descriptions and solving quantitative problems. Provide definitions of the following gas laws: Boyle’s Law, Gay-Lussac's Law, Charles’s Law and Avagadro’s Hypothesis and also solve quantitative problems that relate to these laws. Solve quantitative problems related to the Ideal Gas Equation. Solve quantitative problems employing Dalton’s Law of Partial Pressures. Define the terms effusion and diffusion; solve quantitative problems involving these concepts. Demonstrate understanding of the concept of Kinetic Molecular Theory by relating these concepts to observable gas properties. Use the van der Waals Equation to predict the properties of real gases.

C. HOURS AND UNITS

<table>
<thead>
<tr>
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<td>Disc</td>
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<td>1.00</td>
</tr>
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D. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Relevant material is presented through class lectures and lecture/laboratory demonstrations.

2. Students perform laboratory experiments that reinforce and expand upon concepts discussed in lecture.
E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS
   Time spent on coursework in addition to hours of instruction (lecture hours)
   a. Weekly reading assignments from lecture text
   b. Chapter Review homework and/or recommended problems
   c. Weekly preparation for laboratory including reading and pre-laboratory assignments
   d. A complete record of all experimental work performed, and analysis of results

2. EVIDENCE OF CRITICAL THINKING
   Assignments require the appropriate level of critical thinking
   a. What is the pH at each stoichiometric point in the titration of 0.519 M acetic acid with 0.915 M NaOH? Draw a representation of the titration curve.
   b. A galvanic cell has the following cell reactions:
      \[ \text{M(s)} + 2\text{Zn}^2+ (aq) \rightarrow 2\text{Zn(s)} + \text{M}^4+(aq) \]
      The standard emf of the cell is 0.16 V, what is the standard potential of the M/M4+ redox couple?

F. TEXTS AND OTHER READINGS (TYPICAL)

3. Other: Student must purchase Safety Goggles from the MJC Bookstore (Fog Gard Plus, ANSI Z87.1-1989, SEI Certified)

III. DESIRED LEARNING

A. COURSE GOAL
   As a result of satisfactory completion of this course, the student should be prepared to:

   Understand the principles of chemistry including kinetics, solutions, equilibrium, acids and bases, electrochemistry, thermodynamics, nuclear chemistry, coordination chemistry, and descriptive chemistry. Students will also have an introduction to organic chemistry. The student will be prepared to succeed in subsequent chemistry courses and to apply this knowledge in other science courses.

B. STUDENT LEARNING GOALS
   Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. Required Learning Goals
   Upon satisfactory completion of this course, the student will be able to:
   a. Identify factors that affect the rates of chemical reactions and explain how these factors work on a molecular level. Graphically determine the order of reaction and predict concentrations after a period of time for a first, second, or zero order reaction. Utilize collision theory, temperature effects, and the Arrhenius equation to explain and/or calculate rates of reaction. Understand the effects of homogeneous and heterogeneous catalysts.
b. Describe how entropy changes for different processes and how entropy and enthalpy affect the spontaneity of a chemical reaction. Determine the Gibbs free energy of a reaction and use it to determine if a reaction is spontaneous.

c. Describe the concept of chemical equilibrium, and describe how to shift a chemical reaction in the forward or backward direction.

d. Use the mass action expression to calculate if a reaction is at equilibrium, if the reaction is favorable or unfavorable, and to determine equilibrium concentrations.

e. Identify, based on structure, if a substance is an acid or base, and use pH to calculate concentrations of hydronium and hydroxide ions in aqueous solutions. Use acid and base ionization constants to determine relative strengths of these solutions and to calculate pH, pOH, hydronium and hydroxide concentrations. Calculate a titration curve based on experimental data for a strong acid and/or base, a weak acid and/or base. Find the Ka from a titration curve. Utilize molecular structure to predict acid/base properties. Calculate pH and capacity of a buffer solution. Calculate solubility equilibria for a salt solution using Ksp, including factors affecting solubility.

f. Describe how electrolysis can be used to perform chemical reactions and be able to perform electrolysis calculations. Determine the potential, explain what the parts are in a galvanic cell using cell notation, and give the half reactions and the net reaction. Utilize reaction Gibbs free energy in cell potential calculations. Use the Nernst equation to perform electrochemical calculations. Predict spontaneity of reactions from the electrochemical series.

g. Calculate the half-life of a nuclear reaction. Balance nuclear reactions and describe applications and hazards of nuclear reactions. Describe the fundamental particles involved in a typical nuclear reaction (alpha, beta, gamma, neutron, proton, positron). Compare and contrast fission and fusion nuclear reactions.

h. Describe sources and uses of oxygen, nitrogen, carbon, halogens, inert gases, silicon, phosphorus, and sulfur.

i. Explain and calculate spontaneity of a chemical process based on the second and third laws of thermodynamics.

j. Name complex ions and coordination compounds. Describe the stereochemistry of complex ions and coordination compounds.

k. Name simple alkanes. Identify the functional groups in an organic molecule.

2. **Lab Learning Goals**

Upon satisfactory completion of the lab portion of this course, the student will be able to:

a. Demonstrate safe practice in the chemistry laboratory, including measures to prevent/control fire, explosion, contact with and/or intake of hazardous chemicals or fumes.

b. Demonstrate the capacity to perform basic statistical analysis of data including standard deviation and confidence limits.

c. Demonstrate use of Excel (or similar spreadsheet) for graphing and analysis of data.

d. Create an experimental titration curve for a strong acid, weak acid and diprotic acid.

e. Determine experimentally how concentration, temperature and a catalyst affect the rate of a reaction and the activation energy.

f. Determine experimentally the rate law for a reaction and choose the most probable mechanism.

g. Use qualitative analysis to identify ions based on observations of known reactions.

h. Experimentally determine the equilibrium constant and use experimental data to explain Le Châtelier's principle.
Châttier’s principle.

i. Demonstrate the ability to evaluate data. Demonstrate the graphical techniques of analyzing experimental data, including determining the slope and graphing and interpreting logarithmic data.

IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT

1. Assigned homework and/or quizzes given throughout the semester.
2. Examinations given at regular intervals throughout the semester.
3. Identification of laboratory unknowns
4. Laboratory reports required after completion of each experiment.
5. Observation of laboratory technique and safety

B. SUMMATIVE ASSESSMENT

1. A comprehensive final examination
Technology Mediated Instruction (T.M.I.) Form

PREPARED BY: Laura Maki

DATE SUBMITTED:

COURSE PREFIX AND NUMBER: CHEM 102

COURSE TITLE: General Chemistry 2

EFFECTIVE DATE:

METHOD OF INSTRUCTION

MIXED MODALITIES/HYBRID COURSE Some, but not all, class time is replaced by distance education. Students must have regular access to a computer which is connected to the Internet. Course has one or more on-campus meetings.

The lecture and/or lecture discussions may be offered online (up to 60% of the course) NO portion of the Laboratory component will be offered online (0% of the lab). All exams must be proctored and preferable given on campus.

TYPE OF TEACHING MODALITIES

<table>
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<th>TEACHING MODALITIES</th>
<th>TEACHING MODALITIES</th>
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<tr>
<td>Asynchronous Discussion</td>
<td>Web or Computer-based Activities</td>
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<tr>
<td>Synchronous Chat</td>
<td>Reading Online Materials</td>
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<td>Viewing Text-based Materials</td>
<td>Viewing video/audio Materials</td>
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<td></td>
<td>Quizzes, Self-test and Exams</td>
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COURSE ANALYSIS

1. Describe how the teaching modalities checked on front side will facilitate instructor/student contact.

   Allowing students to participate in an asynchronous discussion allows for a more open discussion and will likely increase instructor-student interaction. The addition of Computer or Web-based activities allows for faculty to require mastery of certain skills. Instructors are able to observe the progress of the students and can modify lecture or office hour time according to student needs.

2. Are the methods of evaluation different from those listed on the approved course outline? If so, in what ways do they differ?

   No.
CHEM 102 – Hybrid Modality

Describe how the methods selected will allow students to meet the student learning goals of the course.

Students are able to master material with web or computer-based activities. Lectures online provide students multiple attempts at viewing information. There is an increased interaction between student and instructor and student and other students with the use of discussion boards and chat rooms.
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<tr>
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<td>Cross Listed Course</td>
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<td>Catalog Description</td>
<td>Continuation of Chemistry 101 emphasizing kinetics, solutions, equilibrium, acids and bases, electrochemistry, thermodynamics, nuclear chemistry, coordination chemistry and descriptive chemistry.</td>
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**Proposal Information**

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**Expedited Approval Information**

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<td>Why are you requesting expedited approval?</td>
<td>To ensure student progression w/in program</td>
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<tr>
<td>Provide below your written rationale demonstrating imminent need</td>
<td>Units: Establish compliance with Title V - section 55002.5</td>
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Proposal Impact

CHEM 102 General Chemistry 2
**Periodic Review**
Laura Maki

Courses

1. ADJU XXX999 *Pending*
2. CHEM 112 *Active*
3. CHEM 112 *Launched*

Cross Listed Courses

Programs

1. Construction Management A.S. Degree *New Program*
2. Engineering A.S. Degree *New Program*
3. Physical Science A.S. Degree *New Program*
Rationale for Course Action

Transfer and GE Status

CSU Transfer: Requested
UC Transfer: Requested
CSU-GE Category: CSU-GE - B1, B3 Requested
IGETC Category: IGETC - 5A Requested

Course Data Elements

Credit Type: Requested
Credit Sub-Type: Requested
TOP Code: 1905.00  SAM Code:  State Classification: A
Open Entry/Open Exit: No  Work Experience: No

Instructor Load

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<td>19.95%</td>
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<td>Total</td>
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Material Fees

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<th>Quantity</th>
<th>Cost</th>
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These materials are related to the Student Learning Goals for the course because:

These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)
Enrollment Restrictions & Advisories

Prerequisite: CHEM 102
I. **OVERVIEW**  
The following information will appear in the 2009 - 2010 catalog

**CHEM-112 Organic Chemistry 1**  
5.33 Units

**Prerequisite:** Satisfactory completion of CHEM 102 .

Nomenclature, structure, reactions and spectroscopy of carbon containing compounds. Laboratory emphasizes basic techniques of synthesis, purification, and identification of organic compounds. Field trips are not required. Course is applicable to the associate degree. General Education:  
CSU-GE - B1, B3  
IGETC Category: IGETC - 5A

II. **LEARNING CONTEXT**  
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

   a. Electronic Structure and Bonding
     
     i. ionic vs. covalent bonding
     
     ii. hybridization

   b. Acids and Bases
     
     i. pH and pKa
     
     ii. Henderson-Hasselbalch equation
     
     iii. organic acids
     
     iv. buffer solutions

   c. Alkanes
     
     i. molecular formulae, structure and hybridization
     
     ii. nomenclature
     
     iii. Newman projections
     
     iv. cyclic alkanes
     
     v. molecular formulae
     
     vi. chair conformation of cyclohexane
d. Alkenes
   i. molecular formulae, structure and hybridization
   ii. nomenclature
      a. cis-trans convention
      b. E, Z system
   iii. electrophilic addition reactions
      a. sample reactions
      b. mechanism

e. Stereochemistry
   i. chirality
   ii. enantiomers
      a. drawing
      b. naming R, S system
   iii. diastereomers and meso compounds
      a. drawing
      b. naming R, S system
   iv. optical activity
      a. rotation
      b. calculation
   v. Effect of stereochemistry on product structure and distribution

f. Alkynes
   i. molecular formulae, structure and hybridization
   ii. nomenclature
   iii. reactions
   iv. alkynes as nucleophiles in synthesis

g. Electron Delocalization
   i. resonance structures
ii. chemical consequences, eg., pKa modification

iii. introduction to aromaticity

h. Alkyl halides
   i. molecular formulae, structure and hybridization
   ii. nomenclature
   iii. substitution reactions
      a. SN2
      b. SN1
   iv. elimination reactions
      a. E2
      b. E1
   v. stereochemical consequences of SN1, SN2, E1 and E2 reactions
   vi. competition between substitution and elimination reactions
   vii. alkyl halides in synthesis

i. Oxygen, nitrogen and sulfur containing compounds
   i. nomenclature
   ii. reactions
   iii. use in synthesis

j. Radical reactions
   i. reactivity vs. selectivity
   ii. stereochemical consequences
   iii. allylic and benzylic radicals

k. Mass Spectrometry
   i. fragmentation
   ii. isotopes
   iii. interpretation of spectra

l. Infrared Spectroscopy
   i. position and intensity of absorption bands
ii. effect of electron delocalization on absorption bands

iii. interpretation of spectra

m. Ultraviolet absorption
   i. Beer-Lambert Law
   ii. conjugated systems
   iii. effect of conjugation on wavelengths of absorption
   iv. color and applications
   v. interpretation of spectra

n. Nuclear Magnetic Resonance, emphasis on 1H NMR
   i. chemical shifts and shielding
   ii. splitting patterns
   iii. diamagnetic anisotropy
   iv. integration of signals
   v. deuterium and solvent choice
   vi. 13C NMR
   vii. DEPT, COSY and HETCOR
   viii. interpretation of spectra

2. **Required Lab Content:**

Lab Content (Typical Labs include)

a. Check-in and safety
b. Solubility and miscibility
c. Separation of an organic acid from a nonpolar compound
d. Crystallization of fluorene
e. Identification of an unknown analgesic by TLC
f. Sodium borohydride reduction of fluorenone to fluorenol followed by TLC
g. Column chromatography of spinach juice/UV-analysis
h. Hydrogenation of oleic acid
i. Bromination of cinnamic acid
j. A Diels-Alder reaction between alpha-phellandrene and maleic anhydride
k. Steam distillation of limonene from orange peel
l. Ethanol from sucrose/fractional distillation

B. ENROLLMENT RESTRICTIONS

1. Prerequisites

Satisfactory completion of CHEM 102.

2. Requisite Skills

   Before entering the course, the student will be able to:
   
   a. Identify and apply the vocabulary and basic principles of general chemistry.
   b. Identify and use the techniques of measurement in general chemistry.
   c. Demonstrate the proper use of laboratory instruments.
   d. Demonstrate the graphics techniques of analyzing experimental data.
   e. Design simple experiments to test chemical principles.
   f. Demonstrate the proper use of chemical composition and molar ratios as applied to stoichiometric relationships within a chemical reaction.
   g. Use the concepts of pH, equilibrium, Ka and pKa to describe the strength, form (ionized or unionized) and solubility of an organic acid.
   h. Draw Lewis dot structures for sp, sp2 and sp3 hybridized atoms within a molecule.
   i. Apply concepts of thermodynamics, equilibrium and kinetics to chemical reactions/systems.

C. HOURS AND UNITS

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<thead>
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D. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Relevant material is presented through class lectures and lecture/laboratory demonstrations
2. Students perform laboratory experiments that reinforce and expand upon concepts discussed in lecture

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS

   Time spent on coursework in addition to hours of instruction (lecture hours)
a. Reading assignments from lecture text approximately 50 pages per week
b. Chapter Review homework questions approximately 70 per week.
c. Weekly preparation of laboratory notebook which will include:
   i. physical properties and toxicity data for all reactant and product compounds as found in appropriate reference texts
   ii. a complete record of all experimental work performed, and analysis of results obtained

2. EVIDENCE OF CRITICAL THINKING
   Assignments require the appropriate level of critical thinking

   a. The student must demonstrate an understanding of spectroscopy as evidenced by the ability to deduce the structure of a compound given its spectra provided by mass spectrometry, ultraviolet-visible, infrared and 1H and 13C NMR spectroscopy. This is demonstrated on exam material and in the laboratory setting.

   b. The student must be able to apply a variety of chemical reactions as evidenced by an ability to synthesize small organic compounds in 2-5 steps given the structure of the product. The reagents must be specified and the reactions carried out in an appropriate order. This is demonstrated on exam material and in the laboratory setting.

   c. Sample exam question
      On the following pages you will find the MS, IR, 1H and 13C NMR spectra of compound A
      a. Write the molecular formula for compound A.
         b. Deduce the structure of compound A and draw it.
         c. Synthesize compound A starting from benzene, any alkyl or aryl halide of 4 carbons or less and any necessary inorganic reagents.

F. TEXTS AND OTHER READINGS (TYPICAL)

   4. Other: Student must purchase these items from MJC Bookstore:
      1. Goggles (Fog Gard Plus, ANSI Z87.1-1989, SEI Certified)
      2. Laboratory notebook with NCR pages
      3. Organic Chemistry Model Kit
   5. Other: Laboratory notebook with NCR pages
      Organic Chemistry Model kit

III. DESIRED LEARNING

A. COURSE GOAL
   As a result of satisfactory completion of this course, the student should be prepared to:
Name and write the formulas for carbon containing compounds, write and predict organic reactions and reaction mechanisms, describe stereochemical aspects of chirality centers, calculate kinetic parameters and interpret mass, infrared, ultraviolet-visible and nuclear magnetic resonance spectra of organic compounds. Upon satisfactory completion of the laboratory, students should be able to perform basic laboratory techniques to complete synthesis and purification of selected compounds.

B. **STUDENT LEARNING GOALS**

*Mastery of the following learning goals will enable the student to achieve the overall course goal.*

1. **Required Learning Goals**

   **Upon satisfactory completion of this course, the student will be able to:**
   
   a. Name various organic molecules using both common and IUPAC nomenclature rules.
   
   b. Determine the structure of an organic molecule when given its IUPAC name.
   
   c. Use the principles of thermodynamics and kinetic analysis to evaluate a set of reaction conditions and determine the resulting kinetic parameters at equilibrium.
   
   d. Determine the type of reaction mechanism operating in a given chemical reaction and describe the mechanism in detail using curved arrows to show movement of electrons. Special emphasis is placed on the mechanisms of electrophilic addition reactions, uni- and bimolecular nucleophilic substitution reactions and radical reactions.
   
   e. Predict the product of a given set of reactants under specified conditions as well as propose reactants and reaction conditions necessary for the production of a particular product. This includes reactions of alkanes, alkenes, alkynes, alkyl halides and alcohols.
   
   f. Devise multi-step synthetic schemes that will induce the production of a particular product molecule of some given complexity.
   
   g. Apply the principles of stereochemistry to the structure, function and reactions of molecules containing chirality centers.
   
   h. Interpret mass, ultraviolet-visible, infrared and nuclear magnetic resonance spectra as evidenced by the correct description of the structure of an unknown compound.
   
   i. Describe the physical characteristics of families of organic compounds including melting and boiling points, density, structure, polarity and solubility.
   
   j. Identify the hybridization of neutral atoms, carbocations and carbanions and the corresponding bond order, bond angles and molecular shapes.
   
   k. Write a procedure designed to separate an organic acid from a neutral molecule using the principles of solubility and pKa.

2. **Lab Learning Goals**

   **Upon satisfactory completion of the lab portion of this course, the student will be able to:**
   
   a. Demonstrate safe practice in the chemistry laboratory including measures to prevent/control chemical spills, fire, explosion, contact and/or intake of hazardous chemicals or fumes and injury due to broken glass or contact with hot glassware.
   
   b. Identify an unknown from a list of compounds based on its melting point.
   
   c. Demonstrate the capacity to determine the solubility of a compound based on its structure and effectively use this information to separate ionic/polar compounds from neutral compounds by extraction.
   
   d. Demonstrate the ability to isolate and purify organic compounds via gravity or vacuum filtration.
   
   e. Separate the components of a mixture via thin layer or column chromatography.
f. Follow the progress of a reaction by thin layer chromatography.

g. Hydrogenate a double bond by generating hydrogen gas from the reaction of zinc and sulfuric acid.

h. Brominate a double bond and determine the stereochemistry of the resulting product.

i. Perform a Diels-Alder reaction and build a model of the resulting adduct.

j. Perform steam, simple and fractional distillation of alcohols and/or oils.

k. Identify pertinent peaks on an infrared spectrum of an organic compound including (but not limited to) peaks for the following functional groups:
carbonyl
alcohol
aldehydes
phenyl groups.

l. Separate organic compounds using gas chromatography.

m. Identify pertinent peaks on a mass spectrum due to fragmentation of an organic compound.

n. Prepare an NMR sample, run a 1H and 13C NMR and determine the structure of an unknown organic compound based on these spectra.

o. Determine the success of a chemical reaction based on IR, MS and NMR analysis.

IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT

1. Assigned homework and/or quizzes given throughout the semester

2. Examinations given at regular intervals throughout the semester

3. Identification of laboratory unknowns

4. Instructor's evaluation of yields and purity of compounds synthesized in the laboratory

5. Laboratory notebook maintained by the student will be graded after each experiment.

6. Observation of laboratory technique and safety

B. SUMMATIVE ASSESSMENT

1. A comprehensive final examination
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<td>Proposed as Honors Course</td>
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<td>Cross Listed Course</td>
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<tr>
<td>Catalog Description</td>
<td>Nomenclature, structure, reactions and spectroscopy of carbon containing compounds. Laboratory emphasizes basic techniques of synthesis, purification, and identification of organic compounds.</td>
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<td>Why is this course being proposed or modified?</td>
<td>periodic review for a standard course and making significant and important changes to content and hours</td>
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**Proposed Information**

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**Expedited Approval Information**

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<td>Why are you requesting expedited approval?</td>
<td>To avoid loss of program accreditation</td>
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<tr>
<td>Provide below your written rationale demonstrating imminent need</td>
<td>This is not an accredited program, however, the course is out of compliance with Title 5 section 55002.5 and needs to be brought into compliance effective for next offering in the fall.</td>
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Proposal Impact

CHEM 112 Organic Chemistry 1
**Periodic Review**
Mary Roslaniec

Courses

1. CHEM 113 *Active*
2. CHEM 113 *Pending*

Cross Listed Courses

Programs

1. Physical Science A.S. Degree *New Program*
CHEM 142 - Pre-General Chemistry

Action Type: Periodic Review

Effective:

Primary Author: Joseph Caddell

Other Author(s):

CC Representative Approval By:

CC Staff Review By:

Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

CSU Transfer: Requested
UC Transfer: Requested
CSU-GE Category: CSU-GE - B1 Requested
IGETC Category: IGETC - 5A Requested

Course Data Elements

Credit Type: Requested
Credit Sub-Type: Requested
TOP Code: 
SAM Code:  
State Classification: A
Open Entry/Open Exit: No  Work Experience: No

Instructor Load

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Material Fees

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<th>Item Name</th>
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These materials are related to the Student Learning Goals for the course because:

These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)
Enrollment Restrictions & Advisories

Corequisite: MATH 90
I. OVERVIEW
The following information will appear in the 2009 - 2010 catalog

CHEM-142 Pre-General Chemistry
3 Units

Corequisite: Concurrent enrollment in or satisfactory completion of MATH 90 or equivalent placement by MJC assessment process.

Intended to prepare students for General Chemistry with an emphasis on problem solving using unit analysis. Included are topics on classification of matter, nomenclature, gas laws, chemical formula, molar mass, empirical formula, chemical reactions, atomic and molecular structure, measurements and the metric system, chemical reactions and stoichiometry, aqueous solutions and fundamentals of acids and bases. Field trips are not required. Course is applicable to the associate degree. General Education:
CSU-GE - B1
IGETC Category: IGETC - 5A

II. LEARNING CONTEXT
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. COURSE CONTENT

1. Required Content:

   a. Elements and Compounds
      i. Vocabulary and Organization of Chemistry
      ii. Chemical Elements and the Periodic Table
      iii. Elements, Atoms, and Atomic Numbers
      iv. Physical Properties of Elements and Compounds

   b. Molecular Substances and Lewis Structures
      i. Molecules in Chemistry
      ii. Lewis Structures

   c. Ionic Compounds
      i. Ionic Compounds with Two Elements
      ii. Polyatomic Ions in Ionic Compounds
      iii. Oxidation Numbers and Chemical Formulas

   d. The Mole and Chemical Equations
      i. Measuring and Counting Chemical Substances
ii. Chemical Reactions and Equations

iii. Chemical Counting in Chemical Reactions

e. Chemical Reactions

i. Chemical Properties and Changes

ii. Chemical Reactions and Prediction

iii. Single Displacement and Oxidation-Reduction Reactions

iv. Double Displacement Reactions

f. Quantitative Properties of Matter

i. Methods of Measurement

ii. Density

iii. Proportions in Chemical Measurement

iv. Proportional Reasoning and Chemical Substances

g. Counting and Measurement in Chemical Experiments

i. Recording Measurements

ii. Units of Measure

h. Measurement of Chemical Substances

i. Chemical Formula and Molar Mass

ii. Multiple Conversions and Chemical Amounts

iii. Mass Composition of Compounds

iv. Empirical Formulas

i. Chemical Stoichiometry

i. Mole Amounts and Chemical Equations

ii. Mass Amounts and Chemical Equations

iii. Limiting Reactants and Yields

j. Discovering Gas Laws

i. Interpreting Relationships Among Chemical Phenomena

ii. Properties of Gases

iii. Temperature and Linearity in Chemistry
iv. Extension and Interpretation of the Gas Laws

k. Chemical Systems and Heat
   i. Temperature and Heat
   ii. The Quantitative Study of Heat Transfer

l. The Atomic Nucleus: Isotopes and Radioactivity
   i. The Isotopic Composition of Elements
   ii. Radioactivity: A Nuclear Reaction

m. Electrons and Chemical Bonding
   i. Molecular Shapes
   ii. Electron Configuration and Atomic Properties

n. Solutions, Molarity, and Stoichiometry
   i. Solutions and Molarity
   ii. Molarity and Stoichiometry
   iii. Aqueous Oxidation-Reduction Reactions

o. Acids and Bases
   i. Acids and Bases in Water
   ii. Reactions of Acids and Bases
   iii. Molarity of Acid-Base Mixtures
   iv. The pH Function

B. ENROLLMENT RESTRICTIONS

1. Co-requisites
   Concurrent enrollment in MATH 90 or equivalent placement by MJC assessment process.

2. Requisite Skills
   Before entering the course, the student will be able to:

   a. Given an applied problem, analyze the problem, select an appropriate mathematical model, and use that model to solve the problem. Models used include: linear, quadratic, exponential, logarithmic, systems, and conic sections.

   b. Convert numbers to and from scientific notation and apply rules of exponents to these numbers
c. Solve exponential and logarithmic equations  
d. Solve quadratic equations  
e. Solve systems of equations

C. HOURS AND UNITS

<table>
<thead>
<tr>
<th>INST METHOD</th>
<th>TERM HOURS</th>
<th>UNITS</th>
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</tr>
<tr>
<td>Disc</td>
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<td>1.00</td>
</tr>
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D. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Lecture presentation.
2. Computer or Web-based Activities
3. Discussion of course content
4. Demonstrations of chemical principles

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS

Time spent on coursework in addition to hours of instruction (lecture hours)

a. Weekly problem solving homework assignments.

b. Weekly readings from text and/or online sources.

2. EVIDENCE OF CRITICAL THINKING

Assignments require the appropriate level of critical thinking

Examples of homework/exam questions:

a. Given that 1 mi = 1760 yd, determine how many miles are in 1849 yd.

b. A binary compound of magnesium and nitrogen is analyzed and 1.2791 g of the compound is found to contain 0.9240 g of magnesium. When a second sample of this compound is treated with water and heated, the nitrogen is driven off as ammonia, leaving a compound that contains 60.31% magnesium and 39.69% oxygen by mass. Calculate the empirical formula of the two magnesium compounds

F. TEXTS AND OTHER READINGS (TYPICAL)

A. COURSE GOAL
As a result of satisfactory completion of this course, the student should be prepared to:

Work successfully with the language and symbols of college-level chemistry. The student will be prepared to succeed in subsequent chemistry courses, and apply this knowledge in other science courses as well.

B. STUDENT LEARNING GOALS
Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. Required Learning Goals
Upon satisfactory completion of this course, the student will be able to:

a. Understand uncertainty in measurements by using significant figures.

b. Use all three temperature scales and convert between them.

c. Name inorganic compounds and derive chemical formulas from names.

d. Use the periodic table to find information on elements.

e. Balance chemical reactions.

f. Calculate oxidation numbers for all elements in a chemical reaction.

g. Recognize and identify the oxidizing and reducing agents in a chemical reaction.

h. Recognize and balance simple oxidation – reduction reactions.

i. Use stoichiometry to determine the amount of a substance needed or produced.

j. Calculate and use molarities.

k. Write the formula equation, total ionic equation, and net ionic equation for a chemical reaction.

l. Predict whether a given compound is soluble or insoluble in an aqueous solution.

m. Understand the atomic structure and identify the components of an atom.

n. Determine acidity and alkalinity using the pH scale.

o. Use scientific notation to represent very large and very small numbers.

p. Solve chemical problems using unit analysis.

IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT

1. Assigned homework and/or quizzes may be given throughout the semester.

2. Examinations will be given at regular intervals throughout the semester.

B. SUMMATIVE ASSESSMENT

1. A comprehensive final examination.
Technology Mediated Instruction (T.M.I.) Form

PREPARED BY: Joseph Caddell
COURSE PREFIX AND NUMBER: CHEM 142
COURSE TITLE: Pre-General Chemistry
EFFECTIVE DATE:

METHOD OF INSTRUCTION

ONLINE COURSE All class time is done online. Students must have access to a computer with individual e-mail account and access to the World Wide Web. Course has no on-campus meetings.

TYPE OF TEACHING MODALITIES

<table>
<thead>
<tr>
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<td>Asynchronous Discussion</td>
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<td>Viewing Text-based Materials</td>
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<td>Quizzes, Self-test and Exams</td>
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</table>

COURSE ANALYSIS

1. Describe how the teaching modalities checked on front side will facilitate instructor/student contact.

Allowing students to participate in an asynchronous discussion allows for a more open discussion and will likely increase instructor-student interaction. The addition of Computer or Web-based activities allows for faculty to require mastery of certain skills. Instructors are able to observe the progress of the students and can modify lecture or office hour time according to student needs.

2. Are the methods of evaluation different from those listed on the approved course outline? If so, in what ways do they differ?

No
TYPE OF TEACHING MODALITIES

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COURSE ANALYSIS

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2. Are the methods of evaluation different from those listed on the approved course outline? If so, in what ways do they differ?

   The same evaluation methods are used.
CHEM 142 – Online Modality

Describe how the methods selected will allow students to meet the student learning goals of the course.

Students are able to master material with web or computer-based activities. Lectures online provide students multiple attempts at viewing information. There is an increased interaction between student and instructor and student and other students with the use of discussion boards and chat rooms.

CHEM 142 – Hybrid Modality

Describe how the methods selected will allow students to meet the student learning goals of the course.

Students are able to master material with web or computer-based activities. Lectures online provide students multiple attempts at viewing information. There is an increased interaction between student and instructor and student and other students with the use of discussion boards and chat rooms.
Proposal Impact

CHEM 142 Pre-General Chemistry
**Periodic Review**
Joseph Caddell

Courses

1. BIO 101 *Pending*
2. BIO 101 *Active*
3. CHEM 101 *Active*
4. CHEM 144 *Active*

Cross Listed Courses

Programs
CHEM 144 - Fundamentals of Organic & Biochemistry

Action Type: Periodic Review
Effective:
Primary Author: Laura Maki
Other Author(s): CC Representative Approval By:
CC Staff Review By:
Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

CSU Transfer: Requested
UC Transfer: Requested
CSU-GE Category: CSU-GE - B1, B3 Requested
IGETC Category: IGETC - 5A, 5A, 5A, 5B, 5B, 5B Requested

Course Data Elements

Credit Type: Requested
Credit Sub-Type: Requested
TOP Code:  SAM Code:  State Classification: A
Open Entry/Open Exit: No  Work Experience: No

Instructor Load

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Material Fees

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These materials are related to the Student Learning Goals for the course because:

These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)
Enrollment Restrictions & Advisories

Prerequisite: CHEM 143
I. OVERVIEW
The following information will appear in the 2009 - 2010 catalog

CHEM-144 Fundamentals of Organic & Biochemistry 4 Units

Prerequisite: Satisfactory completion of CHEM 143.

Basic principles of organic and biochemistry. Uses inductive and deductive problem solving methods. Field trips are not required. Course is applicable to the associate degree. General Education:

CSU-GE - B1, B3
IGETC Category: IGETC - 5A, 5A, 5A, 5B, 5B, 5B

II. LEARNING CONTEXT
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. COURSE CONTENT

1. Required Content:

   a. Properties and reactivity of the functional groups
      i. Alkanes
      ii. Alkenes, alkynes
      iii. Alkyl halides
      iv. Alcohols
      v. Carboxyls
      vi. Carboxylic acids and derivatives
      vii. Amines
      viii. Aromatics
      ix. Polynuclear molecules

   b. Bonding and structure of organic molecules including
      i. Lewis structure
      ii. Hybrid orbitals
      iii. Isomers

   c. IUPAC Nomenclature of
      i. Alkanes
Alkenes
Alcohols and Ethers
Aldehydes and Ketones
Carboxylic acids and Esters
Amines and Amides

Steroisomerism
Chiral molecules
Enantiomers
Diastereomers
Optical Activity

Acids and Bases
Properties of Acids and Bases
Acid dissociation constants
Buffers

Simple Organic Reactions involving or producing
Alkanes
Alkenes
Alcohols and Ethers
Aldehydes and Ketones
Carboxylic acids and Esters
Amines and Amides

Structure and metabolism of
Carbohydrates (sugars)
Lipids
Proteins
Amino acids
Nucleic Acid
2. **Required Lab Content:**

Lab Content (Typical Labs include):

a. Molecular Models  
b. Distillation  
c. Extraction  
d. Hydrocarbons  
e. Chromatography  
f. Isolation of Cinnamaldehyde  
g. Preparation of Hand Cream  
h. Synthesis of Aspirin  
i. Carboxylic Acids and Titration of Vitamin C  
j. Polymers  
k. Carbohydrates  
l. Lipids: Triglycerides and Soaps  
m. Proteins  
n. Proteolytic enzymes

B. **ENROLLMENT RESTRICTIONS**

1. **Prerequisites**

   Satisfactory completion of CHEM 143.

2. **Requisite Skills**

   *Before entering the course, the student will be able to:*

   a. Apply the principles of the scientific method to solve basic chemical concepts and use dimensional analysis for unit conversions.

   b. Differentiate between pure elements, pure compounds, homogenous and heterogeneous mixtures, chemical and physical properties and changes.

   c. Use the periodic table of elements to determine atomic number, mass number, protons, electrons, neutrons, molar mass, naming binary compounds. Classify elements as metals, nonmetals and metalloids.

   d. Balance chemical equations and use mole ratios to determine percent yield.
e. Differentiate between ionic and covalent compounds and use Lewis structures and VSEPR to predict shape of molecules.

f. Define normal boiling point, normal melting point and determine relative boiling points based on intermolecular forces.

g. Calculate molarity of a solution or use molarity to determine moles of an element or compound.

h. Differentiate between strong and weak acids; strong and weak bases, calculate pH and (H+), calculate the proper ratio of weak acid or base to conjugate cation or anion to prepare buffer solution of defined pH.

i. Use and identify standard chemical equipment including graduated cylinder, pipet, buret and Bunsen burner.

C. HOURS AND UNITS

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D. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Relevant material is presented through class lectures and lecture/laboratory demonstrations.

2. Students perform laboratory experiments that reinforce and expand upon concepts discussed in lecture.

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS

Time spent on coursework in addition to hours of instruction (lecture hours)

a. Reading assignments from lecture text approximately

b. Chapter Review homework and/or recommended problems

c. Weekly preparation for laboratory including reading and pre-laboratory assignments

d. A complete record of all experimental work performed, and analysis of results

2. EVIDENCE OF CRITICAL THINKING

Assignments require the appropriate level of critical thinking

Homework: For each pair below, describe the intermolecular force and choose the compound with the higher melting point.

A) CH$_3$Cl and KCl
B) NaOH and CH$_3$CH$_2$OH
C) CH$_3$CH$_2$CH$_2$ and CH$_3$(CH$_2$)$_5$CH$_3$

Draw the structure for each of the following compounds

A) 2-methylpentanal
B) formaldehyde
C) acetic acid
Exam question:
Give the name or the structure for each of the following. If naming stereoisomers, be specific wth D-, L-, alpha-, or beta-
A) Structure 1  
B) beta-D-Galactose  
C) Structure 2  
D) any uronic acid  
E) a triglyceride made from two palmitic acids and one oleic acid  
F) the amino acid valine - as it is found at physiological pH

F. TEXTS AND OTHER READINGS (TYPICAL)


3. Other: Student must purchase goggles from MJC Bookstore (Fog Gard Plus, ANSI Z87.1-1989, SEI Certified)

III. DESIRED LEARNING

A. COURSE GOAL

As a result of satisfactory completion of this course, the student should be prepared to:

Recognize, name, and describe typical physical properties and reactions for the following classes of compounds: alkanes, alkenes, alkynes, benzene derivatives, alcohols, aldehydes, ketones, carboxylic acids, esters, and amides. The student should also be able to recognize structures and basic properties of carbohydrates, lipids, proteins, and nucleic acids.

B. STUDENT LEARNING GOALS

Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. Required Learning Goals

Upon satisfactory completion of this course, the student will be able to:

a. Correctly draw number of covalent bonds and lone pairs required by hydrogen, carbon, oxygen, nitrogen, sulfur, or halogen atom.

b. Predict bond angle and molecule geometry of molecules consisting of carbon, hydrogen, and oxygen atoms. Predict bond angles and geometries associated with single, double, or triple bonds.

c. Name simple alkanes using IUPAC (systematic) nomenclature. Compare physical properties (such as boiling point) of two compounds from the same family. Distinguish between the terms "conformation", "constitutional isomer", and "different chemical formula". Understand and utilize the line angle method of drawing molecules.

d. Name simple alkenes and alkynes using IUPAC nomenclature. Distinguish between cis and trans alkenes. Recognize alkenes that do not exist as cis-trans isomers. Predict correct product of addition to alkenes, utilizing Markovnikov's Rule if needed.

e. Name simple benzene derivatives using IUPAC nomenclature. Recognize the difference between benzene rings and cyclohexane rings. Predict correct product of nucleophilic aromatic substitution onto benzene itself.

f. Name simple alcohols using IUPAC (systematic) nomenclature. Compare physical properties (such as boiling point and water solubility) of two compounds from the same family or different families, including alcohols, ethers, or thiols. Predict correct product(s) of oxidation or
dehydration of alcohols.

g. Recognize tetrahedral stereocenters. Distinguish between chiral and achiral molecules. Tell the number of stereoisomers possible for a given chiral molecule. Distinguish between types of stereoisomers (cis-trans, enantiomer, diastereomer). Determine the R or S configuration of a stereocenter.

h. Define acid and base. Provide the conjugate acid of a given base or the conjugate base of a given acid. Determine relative strength of two acids given their Ka’s or pKa’s. Determine relative strength of two bases given their Kb’s or pKb’s. Given an acid-base reaction and strength of acids (or bases), determine the acid, base, conjugate acid, conjugate base, and tell which side is favored.

i. Name simple amines using IUPAC (systematic) nomenclature. Identify aromatic and aliphatic amine and determine which class is more basic.

j. Name simple aldehydes and ketones using IUPAC (systematic) nomenclature. Predict correct products of some reactions of aldehydes and ketones.

k. Name simple carboxylic acids, esters, and amides using IUPAC (systematic) nomenclature. Predict correct product(s) of some reactions of carboxylic acids, esters, and amides.

l. Compare physical properties (such as boiling point and water solubility) of two compounds from the same family or different families, including hydrocarbons, alcohols, ethers, thiols, amines, aldehydes, ketones, carboxylic acids, esters, and amides.

m. Recognize Fischer projections of simple carbohydrates, classify them as aldoses or ketoses, classify them as D or L sugars, determine the number of carbons, and determine the number of stereocenters. Provide the aldonic acid, alditol, or uronic acid of a simple carbohydrate in Fischer projection form. Recognize cyclic forms of sugars, classify them as aldoses or ketoses, classify them as pyranoses or furanoses, determine the number of carbons, identify the anomeric carbon, and classify them as alpha or beta. Understand the differences in structure between common disaccharides and polysaccharides.

n. Recognize the structures of common lipids such as triglycerides, glycerophospholipids, steroids, and eicosanoids. Identify the structural differences between saturated, unsaturated, and trans fatty acids and determine how the differences affect their physical properties and the properties of the triglycerides made with them. Predict the products of saponification or hydrogenation of a triglyceride.

o. Classify amino acids as non-polar, polar, acidic or basic. Predict the effect an acidic or basic amino acid will have on the pH of a peptide. Draw the correct protonation state of an amino acid or peptide at a given pH. Tell the charge an amino acid or peptide will have at a given pH. Given a chart of amino acids, draw a tri-peptide or tetra-peptide. Recognize the primary, secondary, tertiary, and quaternary structures of proteins. Identify the forces that hold together these structures. List agents that can disrupt these forces and denature the protein.

p. Classify enzymes based on the type of reactions they catalyze. Recognize the way an enzyme’s rate of catalysis responds to changes in enzyme concentration, substrate concentration, pH, temperature, or inhibition. Define the following terms: active site, competitive inhibition, non-competitive inhibition, allostery, feedback regulation, cofactor, coenzyme, apoenzyme, substrate.

q. Identify the structural parts of a nucleoside or nucleotide. Identify the differences bewteen an RNA nucleotide and a DNA nucleotide. Identify the 3’ and 5’ ends of a nucleotide. Given a sample strand of DNA, provide the complementary strand of DNA or the translated strand of mRNA. Given a strand of mRNA and the genetic code, determine the protein produced by translation. Define the terms replication, transcription, translation, and reverse transcription.

2. Lab Learning Goals

Upon satisfactory completion of the lab portion of this course, the student will be able to:

a. Demonstrate safe practice in the chemistry laboratory, including measures to prevent/control...
fire, explosion, contact with and or intake of hazardous chemicals or fumes.

b. Demonstrate the ability to purify a mixture of chemicals by distillation. (The student shall demonstrate the ability to set up a distillation apparatus, use a pipet, and to use a density measurement to characterize a liquid).

c. Demonstrate the ability to purify a mixture of chemicals by extraction.

d. Demonstrate the ability to separate and identify components of a mixture by chromatography.

e. Investigate the solubilities and simple reactivities (eg. halogenation) of various hydrocarbons (alkanes, alkenes, arenes).

f. Investigate the solubilities and simple reactivities (eg. oxidation) of aldehydes

g. Investigate the solubilities of carboxylic acids.

h. Perform a Fischer esterification reaction.

i. Perform chemical tests (eg. Benedict’s test) to investigate the properties of carbohydrates.

j. Investigate the solubilities and simple reactivities (eg. halogenation as saturation test) of various lipids.

k. Investigate the simple reactivities (eg. denaturation) of proteins.

3. **Recommended Learning Goals**

   Upon satisfactory completion of the course (when the related recommended content is covered) the student will be able to:

   a. Perform a saponification reaction to make soap.

   b. Perform a simple acetylation reaction to synthesize aspirin.

   c. Test the activity levels of proteolytic enzymes under various conditions.

   d. Perform a fermentation and purify the ethanol product.

   e. Perform a titration to detect vitamin C in juice.

   f. Investigate the properties of various polymers and perform synthesis and crosslinking reactions

**IV. METHODS OF ASSESSMENT (TYPICAL)**

A. **FORMATIVE ASSESSMENT**

   1. Assigned homework and/or quizzes given throughout the semester

   2. Examinations given at regular intervals throughout the semester

   3. Identification of laboratory unknowns

   4. Laboratory reports required after completion of each experiment

   5. Observation of laboratory technique and safety
B. **SUMMATIVE ASSESSMENT**

1. A comprehensive final examination
<table>
<thead>
<tr>
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<tr>
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<td>Catalog Description</td>
<td>Basic principles of organic and biochemistry. Uses inductive and deductive problem solving methods.</td>
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<td>Why is this course being proposed or modified?</td>
<td>Periodic Review for a standard course and removal of a prerequisites that does not provide students with adequate preparation.</td>
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### Expedited Approval Information

| What effective date are you requesting? | 2009 Semester: Summer |
| Why are you requesting expedited approval? | To ensure student progression w/in program |
| Provide below your written rationale demonstrating imminent need | The laboratory portion of the prerequisite course has been removed. Chem142 is no longer appropriate preparation for students continuing in Chem143. |
Proposal Impact

CHEM 144 Fundamentals of Organic & Biochemistry
**Periodic Review**
Laura Maki

Courses

Cross Listed Courses

Programs

1. Agriculture Laboratory Technician Certificate of Achievement *New Program*
2. Agriculture Laboratory Technician A.S. Degree *New Program*
EHS 215 - Landscape Design

Action Type: New Course

Effective:

Primary Author: David Baggett

Other Author(s):

CC Representative Approval By:

CC Staff Review By:

Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

CSU Transfer: Requested

Course Data Elements

Credit Type: Requested

Credit Sub-Type: Requested

TOP Code: SAM Code: State Classification: I

Open Entry/Open Exit: No Work Experience: No

Instructor Load

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Material Fees

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<th>Quantity</th>
<th>Cost</th>
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</table>

These materials are related to the Student Learning Goals for the course because:

These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)

Enrollment Restrictions & Advisories
I. **OVERVIEW**

The following information will appear in the 2009 - 2010 catalog

EHS-215  *Landscape Design*  3 Units

*Advisory: Before enrolling in this course, students are strongly advised to have successfully completed EHS 201 and EHS 202.*

The study and implementation of the art and science of landscape design, including principles of design, the design process, drafting, graphics, and presentation methods. Project emphasis is placed upon residential and small commercial sites. Field trips are required. Course is applicable to the associate degree.

II. **LEARNING CONTEXT**

*Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:*

A. **COURSE CONTENT**

1. **Required Content:**

   a. The design principles
      i. Unity
      ii. Simplicity
      iii. Harmony
      iv. Balance
      v. Repetition
      vi. Rhythm
      vii. Sequence
      viii. Focalization
      ix. Contrast
      x. Variety
      xi. Scale
      xii. Proportion

   b. The design elements
      i. Form/shape
      ii. Mass/density
iii. Size
iv. Color
v. Value/Tone
vi. Texture
vii. Line/direction
viii. Space
c. Landscape design process
   i. Introduction to the design process
   ii. Client interview
      a. Determining the wants and needs of the client
      b. Determining the design goals and style of the landscaping
      c. Determining if client's wants are feasible
   iii. Site plan
      a. Introduction
      b. Definition of terms
      c. Gathering existing site data
      d. How to measure the site
      e. Procedures for drawing the base plan
   iv. Conceptual plans
      a. Introduction
      b. Combining the client's wants and needs and the site plan
      c. Presenting plans to client for review
   v. Plant materials uses
      a. Introduction
      b. Functional use of plants
      c. Selecting plants for the landscape
      d. Renovation of existing plantings
   vi. Outdoor room concept
a. Introduction
b. Outdoor spaces
c. Outdoor rooms in the residential site
d. Landscape drafting
   i. Tools/materials
   ii. Techniques
e. Layout
   i. Lettering
   ii. Symbols
   iii. CAD
f. Designer relationship
   i. Design presentations
      a. Introduction
      b. Common homeowner approaches to residential site design
      c. Initial contact by potential clients
      d. Meeting the potential clients at their home
      e. Presenting a portfolio
      f. Design fees
      g. Developing a proposal for design fees
   ii. Contractor
      a. Responsibility of each party
      b. Job requirements
g. Landscape drawings
   i. Topography drawings
   ii. Construction drawings
   iii. Construction and installation details
   iv. Working drawings
   v. Final drawings - rendering
h. Landscape considerations
   i. Local ordinances and requirements
   ii. Water conservation
   iii. Climate and energy conservation
   iv. Slopes

i. Design styles

2. Required Lab Content:

a. The design principles
   i. Unity
   ii. Simplicity
   iii. Harmony
   iv. Balance
   v. Repetition
   vi. Rhythm
   vii. Sequence
   viii. Focalization
   ix. Contrast
   x. Variety
   xi. Scale
   xii. Proportion

b. The design elements
   i. Form/shape
   ii. Mass/density
   iii. Size
   iv. Color
   v. Value/Tone
   vi. Texture
   vii. Line/direction
c. Landscape design process
   i. Introduction to the design process
   ii. Client interview
      a. Determining the wants and needs of the client
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ii. Techniques

e. Layout

i. Lettering

ii. Symbols

iii. CAD

f. Designer relationship

i. Design presentations

   a. Introduction

   b. Common homeowner approaches to residential site design

   c. Initial contact by potential clients

   d. Meeting the potential clients at their home

   e. Presenting a portfolio

   f. Design fees

   g. Developing a proposal for design fees

ii. Contractor

   a. Responsibility of each party

   b. Job requirements

g. Landscape drawings

i. Topography drawings

ii. Construction drawings

iii. Construction and installation details

iv. Working drawings

v. Final drawings - rendering

h. Landscape considerations

i. Local ordinances and requirements

ii. Water conservation

iii. Climate and energy conservation
iv. Slopes

i. Design styles

B. ENROLLMENT RESTRICTIONS

1. Advisories

Before enrolling in this course, students are strongly advised to have successfully completed EHS 201 and EHS 202.

C. HOURS AND UNITS

<table>
<thead>
<tr>
<th>INST METHOD</th>
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D. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Lecture/discussion/demonstration/audio-visual materials.
2. Discussion of assigned readings.
4. Observation and analysis of local landscapes.
5. Laboratory exercises.
6. Written assignments, weekly designs, lab reports, or evaluative quizzes and exams.
7. Group projects and presentations.

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS

   Time spent on coursework in addition to hours of instruction (lecture hours)

   Weekly landscape drawings designed and illustrated by the student evaluated by instructor and critiqued by class.

   Written assignments that include problem solving, evaluation, planning, and implementation of design ideas.

   Assigned readings from required text and supplemental sources.

   Group project and presentation investigating a current issue/technique in the landscape design, or construction industry.

2. EVIDENCE OF CRITICAL THINKING

   Assignments require the appropriate level of critical thinking

   Present your landscape design in class for peer and instructor analysis and critiques.
Create landscape designs based upon site, customer and economic analysis.

Evaluate and discuss landscape designs and installations.

Interview clients for the final design project.

Apply the design process to solve landscape situations and meet client needs. Final exam: Draw an original, complete landscape design and formally present it to the class and, possibly, the client. Apply the elements and principles of landscape design covered in class during the semester in 1) selecting plant materials appropriate to the design concept and the environmental conditions of the site, 2) addressing the problems presented by the site and 3) in meeting the needs of the client.

F. TEXTS AND OTHER READINGS (TYPICAL)


III. DESIRED LEARNING

A. COURSE GOAL
As a result of satisfactory completion of this course, the student should be prepared to:

Draw an original, complete landscape design and formally present it to the client. Students will be able to apply the elements and principles of landscape design covered in class during the semester in 1) selecting plant materials appropriate to the design concept and the environmental conditions of the site, 2) addressing the problems presented by the site and 3) in meeting the needs of the client.

B. STUDENT LEARNING GOALS
Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. Required Learning Goals
Upon satisfactory completion of this course, the student will be able to:

a. Create a functional landscape plan applying the principles and elements of design
b. Demonstrate the proper use of drafting tools and graphic material
c. Apply the design process to solve landscape situations and meet client needs
d. Present a landscape plan to a client
e. Identify and describe architectural, historical, and environmental influences on landscape design
f. Identify and select plant materials according to proper environmental considerations and design principles
g. Summarize the qualifications of landscape architects and others who design or plan landscape installations
h. Describe various computer resources that apply to landscape design
2. **Lab Learning Goals**

   Upon satisfactory completion of the lab portion of this course, the student will be able to:

   a. Create a functional landscape plan applying the principles and elements of design.
   
   b. Demonstrate the proper use of drafting tools and graphic material.
   
   c. Apply the design process to solve landscape situations and meet client needs.
   
   d. Identify and select plant materials according to proper environmental considerations and design principles.

IV. **METHODS OF ASSESSMENT (TYPICAL)**

A. **FORMATIVE ASSESSMENT**

   1. Evaluation of six original landscape designs, a midterm landscape design project, and a group project and presentation designed to apply the design process to solving real-life landscape design problems. Students will be expected to score greater than a 70% average for these eight design activities using the identified criteria.

   2. Evaluation of three drafting exercises (Lettering Plate, Scale Problems, and Line Drawing) and two sketches (Setting up the Drawing Board and Drawing a Plan) designed to develop students skills in the proper use of drafting tools and graphic communication and scoring greater than 70 percent on each activity using identified criteria.

B. **SUMMATIVE ASSESSMENT**

   1. Evaluation of final exam which requires the student to draw an original, complete landscape design and formally present it to the class and, possibly, the client. Students will be expected to score greater than a 70% on the final design using the identified criteria.
<table>
<thead>
<tr>
<th>Department</th>
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<tbody>
<tr>
<td>Course Number</td>
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<tr>
<td>Course Title</td>
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<td>Distance Ed Addendum</td>
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<tr>
<td>Catalog Description</td>
<td>The study and implementation of the art and science of landscape design, including principles of design, the design process, drafting, graphics, and presentation methods. Project emphasis is placed upon residential and small commercial sites.</td>
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<td>Why is this course being proposed or modified?</td>
<td>Five year update.</td>
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### Proposal Information

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### Expedited Approval Information

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<td>Why are you requesting expedited approval?</td>
<td>To ensure student progression w/in program</td>
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</table>

Provide below your written rationale demonstrating imminent need:

The class is taught every two years and is scheduled for Monday nights during Spring 2009. The course was last updated April 2002.
Proposal Impact

EHS 215 Landscape Design
**New Course**
David Baggett

Courses

Cross Listed Courses

Programs
ENSCI 108 - Environmental Conservation  
3 Units

Action Type: Course Revision Minor
Effective:
Primary Author: David Baggett

Other Author(s):
CC Representative Approval By:
CC Staff Review By:
Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

CSU Transfer: Requested
UC Transfer: Requested
CSU-GE Category: CSU-GE - B2 Requested
IGETC Category: IGETC - 5B Requested

Course Data Elements

Credit Type: Requested
Credit Sub-Type: Requested
TOP Code: SAM Code: State Classification: I
Open Entry/Open Exit: No  Work Experience: No

Instructor Load

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Material Fees

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<th>Item Name</th>
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These materials are related to the Student Learning Goals for the course because:

These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)
I. OVERVIEW
The following information will appear in the 2009 - 2010 catalog

**ENSCI-108 Environmental Conservation** 3 Units

Study of the world’s environment to sustain the highest quality of life. Includes study of ecology, populations, environmental pollution, conservation of natural resources including: energy, water, soils, forests, rangelands, and wildlife. Field trips might be required. Course is applicable to the associate degree. General Education:

- CSU-GE - B2
- IGETC Category: IGETC - 5B

II. LEARNING CONTEXT
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. COURSE CONTENT

1. **Required Content:**

   A. Environmental science and ecological principles
   1. Understanding the environment
   2. Species interaction
   3. Ecosystems—local, global
   B. Population and environmental health
   1. Population dynamics
   2. Environmental health and toxicology
   C. Food, land and biological resources
   1. World hunger
   2. Soil conservation
   3. Sustainable agriculture
   4. Biodiversity
   5. Land use—forests and rangelands
   D. Physical resources
   1. Air, climate and weather
   2. Air pollution
   3. Water pollution
   4. Conventional energy
   5. Energy cycles
   E. Society and the environment
   1. Solid, toxic and hazardous waste
   2. Urbanization
   3. Conclusions and analysis

B. HOURS AND UNITS

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C. METHODS OF INSTRUCTION (TYPICAL)

Instructors of the course might conduct the course using the following method:

1. Lecture.
2. Films, slides, and overhead projections.
3. Field experiences.
4. Group or individual project that includes written assignments, problem-solving, evaluation, planning, and implementation of the scientific method.
5. Identification and implementation of appropriate environmental considerations.

D. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS

   Time spent on coursework in addition to hours of instruction (lecture hours)

   a. Study for written examination.
   b. Daily reading of materials.
   c. Weekly research.
   d. Per term, two essays.
   e. Preparation for group presentation.

2. EVIDENCE OF CRITICAL THINKING

   Assignments require the appropriate level of critical thinking

   a. Write an essay that cites two specific forms of environmental degradation affecting each of these five major ecosystems.
   b. Write an essay comparing and contrasting primary and secondary succession citing at least four major events within the evolutionary process. Employing the principles of the scientific method in a term project (A) or research paper (B), students will demonstrate, or investigate an environmental conservation practice.
   c. As a final exam question: Write a reflective essay evaluating their lifestyle in terms of meeting the tenets for creating a sustainable future. The final essay should minimally address the following points: 1) Describe and analyze your environmental impact as a consumer in terms of the four leading consumption-related environmental problems: air pollution, global climate change, changes in natural habitat, and water pollution; 2) Identify the five levels on which people can participate in working towards a sustainable future; 3) Evaluate your lifestyle in terms of the above five levels and describe how you can realistically modify your lifestyle in a more sustainable fashion; and 4) Identify and discuss three Central Valley environmental issues, their causes and possible solutions.

E. TEXTS AND OTHER READINGS (TYPICAL)

J Wiley and Sons in collaboration with the National Geographic Society.


### III. DESIRED LEARNING

#### A. COURSE GOAL

*As a result of satisfactory completion of this course, the student should be prepared to:*

Analyze the major ecosystems of the world as well as local ecosystems and evaluate the impact of man's current and past management of the World’s environment to sustain the highest quality of life.

#### B. STUDENT LEARNING GOALS

*Mastery of the following learning goals will enable the student to achieve the overall course goal.*

1. **Required Learning Goals**

*Upon satisfactory completion of this course, the student will be able to:*

a. Evaluate the environmental conditions of humans in relationship to their total environment.

b. Analyze historical development of natural resources use to sustain for a higher quality life for humankind.

c. Interpret information about the environment.

d. Relate the broad principles of environmental conservation learned in class to everyday life.

e. List and describe soil conservation methods.

f. Evaluate the energy flow cycle.

g. Analyze the hydrologic cycle.

h. Analyze air and water pollution causes and discuss possible solutions.

i. Analyze the cause of solid, toxic and hazardous waste.

j. Evaluate land use policies.

k. Evaluate rangeland ecology topics.

l. Analyze the major ecosystems of the world as well as local ecosystems.

m. Explain the principles of the scientific method.
IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT

1. Evaluation of essay comparing and contrasting primary and secondary succession citing at least four major events within the evolutionary process.

2. Evaluation of essay that cites two specific forms of environmental degradation effecting each of these five major ecosystems.

3. Evaluation of small group presentation.

4. Evaluation of student answers and small group discussion of a set of questions drawn from the readings and lectures.

5. Evaluation of student participation in debates.

6. Evaluation of written examination, with student scoring at least 70%.

B. SUMMATIVE ASSESSMENT

1. Comprehensive final exam

2. Evaluation of student documentation and successful implementation of an environmental conservation activity.

3. Final exam essay

4. Lecture examinations
Proposal Impact

ENSCI 108 Environmental Conservation
**Course Revision Minor**
David Baggett

Courses

Cross Listed Courses

Programs

1. Forestry A.S. Degree *New Program*
2. Forestry Certificate of Achievement *New Program*
3. Forestry A.S. Degree *New Program*
4. Forestry Certificate of Achievement *New Program*
FDP 342 - Introductory Wine Evaluation

1 Unit

Action Type: Course Revision Minor

Effective:

Primary Author: David Baggett

Other Author(s):

CC Representative Approval By:

CC Staff Review By:

Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

Course Data Elements

Credit Type: Requested
Credit Sub-Type: Requested

State Classification: I

Open Entry/Open Exit: No
Work Experience: No

Instructor Load

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Material Fees

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<td>Wine samples</td>
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<td>Food pairings for each class</td>
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These materials are related to the Student Learning Goals for the course because:

The foundation of the course is wine evaluation and wine and food pairings. Student fees purchase the wines included in weekly wine flights and wine and food pairings that are presented weekly.

These items have continuing value because:

These activities, along with homework, allow students to experience and master the evaluation of wines and understand wine and food pairings.

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)
Local wineries host several of the classes and donate wines. This keeps the cost of the class affordable. All food is purchased with student fees.

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**Enrollment Restrictions & Advisories**

**Limitation on Enrollment:** Students must be at least 21 year of age, as this is the legal age for alcohol consumption.
I. OVERVIEW

The scientific study of wines, with an emphasis on using precise descriptive language for sensory evaluation: the use of the senses of sight, smell, taste, and touch in a disciplined, systematic way to learn about some of the chemical and physical properties of wine. Emphasizes California varietal wines as a basis for learning about varietal wine characteristics to build a foundation for understanding the great wines of the world. Course is repeatable - three completions allowed. Field trips are required. Course is applicable to the associate degree.

II. LEARNING CONTEXT

Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. COURSE CONTENT

1. Required Content:

   A. Wine types
      1. Wine in Western civilization
      2. California wine classification
      3. Sparkling wines
      4. White table wine
      5. Red table wine
      6. Dessert wines
   B. Wine-grape production
      1. Soil, water, and climate
      2. Vineyard management
      3. V. vinifera varieties
      4. Rootstocks
   C. Wine production
   D. Sensory evaluation
      1. Theoretical basis of sensory evaluation
      2. Wine terminology and description
      3. Interpreting a wine label
      4. Complementing foods

B. ENROLLMENT RESTRICTIONS

1. Limitations on Enrollment

   Enrollment limited to:

C. HOURS AND UNITS

<table>
<thead>
<tr>
<th>INST METHOD</th>
<th>TERM HOURS</th>
<th>UNITS</th>
</tr>
</thead>
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<tr>
<td></td>
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</table>
D. METHODS OF INSTRUCTION (TYPICAL)
Instructors of the course might conduct the course using the following method:

1. Class lectures.
2. Demonstrations.
3. Films.
4. Guest speakers.
5. Individual evaluation of wine.
7. Discussion and debate.
8. Supplemental readings.
9. Assignments.
10. Students will collect data, analyze, evaluate, and compare problems presented in class.

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS
   Time spent on coursework in addition to hours of instruction (lecture hours)
   a. Weekly homework assignments
   b. Daily reading of materials
   c. Preparation for class discussions

2. EVIDENCE OF CRITICAL THINKING
   Assignments require the appropriate level of critical thinking
   a. Utilize four different, written evaluation instruments developed by industry to assist in standardizing the criteria for comparing weekly flights of wine.
   b. Using aroma scent sticks, identify basic wine aromas and flavors, including varietal aromas, off odors, acidity, sweetness, balance, astringency, alcohol, oak and the effect of malolactic fermentation.

F. TEXTS AND OTHER READINGS (TYPICAL)


III. **DESIRED LEARNING**

A. **COURSE GOAL**

As a result of satisfactory completion of this course, the student should be prepared to:

Demonstrate general knowledge of wine making and wine evaluation using precise descriptive language for sensory evaluation: the use of the senses of sight, smell, taste, and touch in a disciplined, systematic way to learn about some of the chemical and physical properties of wine.

B. **STUDENT LEARNING GOALS**

*Mastery of the following learning goals will enable the student to achieve the overall course goal.*

1. **Required Learning Goals**

   *Upon satisfactory completion of this course, the student will be able to:*

   a. Define the basic wine types, identify their character and explain how they are made.
   b. Employ a systematic technique for sensory evaluation of wines.
   c. Utilize basic terms to describe the organoleptic properties of wines.
   d. Sample and compare a variety of California sparkling, table, and dessert wines.
   e. Identify how the sensory characteristics of wines arise in the vineyard and winery.
   f. Describe the concepts of wine and food combining.
   g. Interpret wine label information.
   h. Discuss health and social issues surrounding wine.

IV. **METHODS OF ASSESSMENT (TYPICAL)**

A. **FORMATIVE ASSESSMENT**

1. Class discussion which demonstrates identification of lifelong positive habits associated with wine consumption.

2. Homework assignments that require students to plan, describe, and evaluate specific food and wine pairings in terms of flavors, odors, textures and tastes.

3. Identification of the characteristics associated with variety, viticulture, soil, and irrigation techniques.

4. Participation in weekly class discussions following tasting each wine included in the week’s wine list.

B. **SUMMATIVE ASSESSMENT**

1. Demonstration of correct utilization of different written evaluation instruments developed by industry to assist in standardizing the criteria for comparing weekly flights of wine.
2. Demonstration of how to correctly use Ann Noble’s The Wine Aroma Wheel and sensory evaluation of wine using aroma scent sticks.
Materials Fee

Yes:

Provide a cost breakdown for all items provided for a materials fee. Each item must become "tangible personal property" of the student upon payment of the fee and completion of the course.

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1) Explain how these materials are related to the Student Learning Goals for the course.

The foundation of the course is wine evaluation and wine and food pairings. Student fees purchase the wines included in weekly wine flights and wine and food pairings that are presented weekly.

2) Explain how the materials have continuing value outside the classroom.

These activities, along with homework, allow students to experience and master the evaluation of wines and understand wine and food pairings.

3) Is the amount of material the student receives commensurate with the fee paid AND with the amount of material necessary to achieve the Student Learning Goals for the course AND provided at the district’s actual cost?

Yes:

4) If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)

Local wineries host several of the classes and donate wines. This keeps the cost of the class affordable. All food is purchased with student fees.
Proposal Impact

FDP 342 Introductory Wine Evaluation
**Course Revision Minor**
David Baggett

Courses

1. FDP 344 *Inactive*
2. FDP 344 *Pending*

Cross Listed Courses

Programs
FSCI 304 - Bldg Construction for Fire Protection

Action Type: Course Revision Major

Effective:

Primary Author: John Sola

Other Author(s):

CC Representative Approval By:

CC Staff Review By:

Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

Course Data Elements

Credit Type: Requested
Credit Sub-Type: Requested
TOP Code: 2133.00  SAM Code:  
State Classification: I
Open Entry/Open Exit: Yes  Work Experience: No

Instructor Load

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Material Fees

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These materials are related to the Student Learning Goals for the course because:

These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)

Enrollment Restrictions & Advisories

Prerequisite: FSCI 301
I. **OVERVIEW**

The following information will appear in the 2009 - 2010 catalog

**FSCI-304  Bldg Construction for Fire Protection**  3 Units

**Prerequisite:** Satisfactory completion of FSCI 301 with a minimum grade of C or better.

Fundamentals of building construction as it relates to fire protection. Introduction to building materials and processes that are involved in the construction of structures. Provide students with the knowledge required to operate safely and effectively within residential or commercial buildings. Course is repeatable - three completions allowed. Field trips might be required. Course is applicable to the associate degree.

II. **LEARNING CONTEXT**

Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

   A. Loads and other forces on building
      1. Dead and live loads
      2. Stress and deformations
      3. Wind loads
      4. Snow loads
      5. Earthquakes, Hurricanes, and Tornadoes
   B. Plans and Codes
      1. Building codes and code development.
      2. International building codes (IBC)
      3. Code for one- and two-family dwelling (CABO)
      4. Fire resistance and flame spread
      5. Plans and blueprints
   C. Building Materials
      1. Stones
      2. Granite
      3. Limestone
      4. Sandstone
      5. Marble
   D. Masonry
      1. Clay Brick
      2. Concrete
      3. Mortar
      4. Masonry and Safety
   E. Steel
      1. Iron Manufacturing
      2. Steel-making processes
   F. Concrete Construction
      1. History
      2. Portland Cement
      3. Mixing
      4. Pouring or Placing
      5. Finishing
      6. Curing
   G. Building Components
      1. Foundations
2. Walls
3. Exterior Walls Coverings
4. Interior Wall Coverings
5. Roofs
6. Floors
7. Ceilings
   1. Suspended
8. Doors and Windows

H. Building Systems Residential
   1. Plumbing
   2. Drain Systems
   3. Heating, Ventilation, and Cooling
   4. Insulation
   5. Electricity and Lighting

I. Commercial
   1. Plumbing
   2. Plumbing systems and materials
   3. HVAC
   4. Elevators

2. **Required Lab Content:**

   a. Photographs of Residential building under construction
      i. Identify construction material
      ii. Locate electrical components
      iii. Analyze building load.

   b. Photographs of Commercial buildings under construction
      i. Identify the building fire rating.
      ii. HVAC systems and power sources.

   c. Review the case history of building collapses.

3. **Recommended Content:**

   a. Building Construction Types
      i. Type I Construction
      ii. Fire rating
      iii. HVAC systems and smoke movement
      iv. Exterior Walls
      v. Roof assemblies

   b. Type II Construction
      i. Main Structural Members
      ii. Exterior Walls
iii. Roof assemblies

c. Type III Construction
d. Type IV Construction
e. Type V Construction

B. Enrollments Restrictions

1. Prerequisites
   Satisfactory completion of FSCI 301 with a minimum grade of C or better.

2. Requisite Skills
   Before entering the course, the student will be able to:
   a. Identify laws, occupational standards and minimum qualifications related to the fire service.
   b. Explain fire service organization structure and its relationship to national, state and local
government.
   c. Identify the specialties within the fire service occupation.
   d. Identify the basic concepts of fire behavior, chemistry and extinguishment.
   e. Describe the role of education and certification programs.
   f. Identify terminology specific to the fire service occupation.

C. Hours and Units

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<tr>
<td>Disc</td>
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D. Methods of Instruction (Typical)
   Instructors of the course might conduct the course using the following method:
   1. Lecture
   2. Group Work
   3. Class discussions
   4. Power Point presentations
   5. Assigned readings
   6. Demonstration
   7. Weekly homework assignments.
8. Per term oral report on fire retardants and fire resistant buildings.

9. Reading assignments and reports from the "Final Report, City of Oklahoma, Federal Building Bombing.

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS
   Time spent on coursework in addition to hours of instruction (lecture hours)
   a. Weekly reading assignment from textbook, and study for quizzes.
   b. Mid term paper at least 1 typewritten page, with illustration and/or photos, explaining and depicting the framing stage of a residential occupancy under construction.
   c. Per term prepare one discussion pager of ten minutes on assigned component's of building construction material
   d. Term project is required. Two photographs, taken by the student, depicting a topic covered in the textbook will be submitted. One typewritten page will accompany each photograph. Explain why the topic you are depicting would be important to a firefighter.

2. EVIDENCE OF CRITICAL THINKING
   Assignments require the appropriate level of critical thinking
   a. Weekly quizzes on building construction will require the students to compare the types of material used in construction and how it is effected by heat and fire.
   b. Analyze the hazards and tactical consideration associated with the various types of building construction.
   c. Identify the principle structural components of buildings and demonstrate and understanding of the functions of each.
   d. Identify the indicators of potential structural failure and factors that contribute to failure as they relate to firefighter safety.

F. TEXTS AND OTHER READINGS (TYPICAL)

2. Other: Strategic and Tactical Considerations on the Fireground, 2nd Edition

III. DESIRED LEARNING

A. COURSE GOAL
   As a result of satisfactory completion of this course, the student should be prepared to:
   Examine all detailed subjects of building construction as it relates to firefighting tactics and strategy. Students will recognize the dangers of wood and steel trusses, and most importantly, examine collapse indicators of fire-resistive, Type I, and noncombustible, Type II construction.

B. STUDENT LEARNING GOALS
   Mastery of the following learning goals will enable the student to achieve the overall course goal.
   1. Required Learning Goals
Upon satisfactory completion of this course, the student will be able to:

a. Describe the differences between axial and eccentric loading
b. Discuss and define shear as it relates to public and firefighter safety.
c. Discuss the role of the NFPA, ASTM, and ANSI in code development.
d. Compare where you find the water and electrical systems in a building.
e. Describe the main differences in strength between steel, concrete, masonry, and wood.
f. Explain why stone is so unstable under fire conditions

g. Discuss roof pitch, span, and rise and why they are important.
h. Describe some similarities and differences of systems in residential and commercial structures.
i. Assess what are some of the dangers of using elevators in a burning building.
j. Discuss structural collapses that require a firefighter’s response.
k. Discuss the responsibilities of the first arriving units.
l. Describe how building collapses contribute to fatalities.
m. Discuss what rapid intervention crews need to know about a building.

2. **Lab Learning Goals**

Upon satisfactory completion of the lab portion of this course, the student will be able to:

a. Analyze the hazards and tactical considerations associated with the various types of building construction.

b. Identify the principle structural components of buildings and demonstrate an understanding of the functions of each.

c. Differentiate between fire resistances and flame spread, and describe the testing procedures used to establish ratings for each.

d. Identify the indicators of potential structural failure and factors that contribute to failure as they relate to firefighter safety.

e. Explain the different loads and stresses that are placed on a building and their interrelationships.

IV. **METHODS OF ASSESSMENT (TYPICAL)**

A. **FORMATIVE ASSESSMENT**

1. Midterm test
2. Oral reports on building failures
3. Term paper on Case studies
4. Weekly quizzes based on reading assignments and class lectures
B. **SUMMATIVE ASSESSMENT**

1. Final Exam
Proposal Impact

FSCI 304 Bldg Construction for Fire Protection
**Course Revision Major**
John Sola

Courses

Cross Listed Courses

Programs

1. Fire Science Certificate of Achievement *New Program*
FSCI 353 - Training Instructor 1B

Action Type: Course Revision Major

Effective:

Primary Author: John Sola

Other Author(s):

CC Representative Approval By:

CC Staff Review By:

Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

Course Data Elements

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These materials are related to the Student Learning Goals for the course because:

The State-provided materials contain regulations, procedures, and information pertinent to becoming a successful training instructor.

These items have continuing value because:

The information in the student manual is a reference book after the student has finished the course. The certification is necessary in order to be a training instructor.

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather
Enrollment Restrictions & Advisories

**Prerequisite:** FSCI 352
I. OVERVIEW

The following information will appear in the 2009 - 2010 catalog

FSCI-353 Training Instructor 1B 2 Units

Formerly listed as: FSCI - 353: Fire Instructor 1B
Prerequisite: Satisfactory completion of FSCI 352 .
Materials Fee Required

Introduction to Training instruction. This is the second part of a two-course series to prepare prospective or active fire company officers with knowledge, methods and techniques for training fire service personnel with emphasis on: Students developing a course outline, technical lesson plans and using multimedia aids. Students evaluate learning philosophies and the technical aspects of the four step method of instruction. Student instructors will apply principles of learning through teaching demonstrations and the evaluation of other students' lesson delivery. Field trips are not required. Course is not applicable to the associate degree.

II. LEARNING CONTEXT

Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. COURSE CONTENT

1. Required Content:
   
   1. Instructors role and responsibilities
      1. Psychology of planning and presenting technical information
   2. Instruction
      1. Effective lecture instruction
      2. Levels of instruction
      3. Effective technical methods
      4. Methods of evaluating student feedback
      5. Evaluation techniques
   3. Course outlines
      1. Preparing course outlines
      2. Developing technical lesson plans
      3. Developing information and activity sheets
   4. Testing
      1. Procedures used in test planning
      2. Fundamentals of different testing models
      3. Test development
      4. Test analysis
   5. Visual aids
      1. How and when to use visual aids
      2. How to prepare visual aids
      3. How to determine visual aid effectiveness

2. Required Lab Content:

   1. Demonstration of instructors role and responsibilities
   1. Psychology of planning and presenting technical information
   2. Application of Instructional methods
      1. Effective lecture instruction
      2. Levels of instruction
3. Effective technical methods
4. Methods of evaluating student feedback
5. Evaluation techniques
3. Development of Course outlines
   1. Preparing course outlines
   2. Developing technical lesson plans
   3. Developing information and activity sheets
4. Creation of Testing Instruments
   1. Procedures used in test planning
   2. Fundamentals of different testing models
   3. Test development
   4. Test analysis
5. Utilization of Visual aids
   1. How and when to use visual aids
   2. How to prepare visual aids
   3. How to determine visual aid effectiveness

B. ENROLLMENT RESTRICTIONS

1. Prerequisites

   Satisfactory completion of FSCI 352.

2. Requisite Skills

   Before entering the course, the student will be able to:
   a. Analyze the training needs for Fire departments and students.
   b. Analyze State Fire Trainings Occupational analysis.
   c. Validate the IFSTA 500 competencies.
   d. Develop course outlines.
   e. Write behavioral objectives.
   f. Choose instructional material.
   g. Develop testing tools.
   h. Evaluating the instructional process.
   i. Test learner outcomes.

C. HOURS AND UNITS

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D. METHODS OF INSTRUCTION (TYPICAL)

   Instructors of the course might conduct the course using the following method:

   1. Course material is presented through class lecture, visual aids and teaching demonstrations.
   2. Additional studies will be required from technical manuals and textbooks.
3. Instructor gives practical exercises and student activities to prepare the student to construct and deliver a technical lesson.

4. Instructor uses group discussions to gain feedback from students about subject matter and to gauge student progress.

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS

   Time spent on coursework in addition to hours of instruction (lecture hours)

   a. Develop course outlines, job breakdowns, and manipulative lesson plans throughout the course of instruction.

   b. Develop and prepare to deliver two lesson plans using manipulative skills for the lesson.

   c. Develop one course of instruction.

   d. Prepare to conduct two teaching demonstrations, per term, which include the following:

      i. Course outlines

      ii. The four-step method of instruction

      iii. Manipulative lesson plan delivery

      iv. Job breakdown sheets

      v. Student evaluation sheets

2. EVIDENCE OF CRITICAL THINKING

   Assignments require the appropriate level of critical thinking

   a. Review and analyze the Occupational Analysis.

   b. Develop a course outline using the Occupational Analysis.

   c. Construct student behavioral objectives for technical issues.

   d. Develop information and activity sheets which are reflective lesson plan objectives.

   e. Construct one ten-question multiple choice and one ten-question true/false test which are reflective of student constructed lesson plan.

   f. Deliver a twenty-minute student teaching demonstration using a computer, a technical lesson plan, and three multi-media visual aids.

   g. Evaluate student teaching demonstration and lead classroom evaluation of student technical lesson delivery using a student evaluation form.

F. TEXTS AND OTHER READINGS (TYPICAL)

III. **DESIRED LEARNING**

A. **COURSE GOAL**
   As a result of satisfactory completion of this course, the student should be prepared to:

   Plan and conduct technical lesson plans for fire service personnel according to California State Fire Training standards. Students will select, develop, organize, and utilize instructional materials appropriate for teaching technical lessons according to training and performance standards set forth by the National Fire Protection Association.

B. **STUDENT LEARNING GOALS**
   Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. **Required Learning Goals**
   Upon satisfactory completion of this course, the student will be able to:

   a. Design and prepare technical lesson plans.
   b. Define the four-step method of instruction and how it applies to technical lessons.
   c. Review the contributions of Benjamin Bloom to instructional design and curriculum development.
   d. Describe a teaching demonstration.
   e. Create evaluation instruments such as quizzes, tests, and exams.
   f. Describe methods of evaluation for peer instructors.
   g. Develop and implement collateral teaching materials.

2. **Lab Learning Goals**
   Upon satisfactory completion of the lab portion of this course, the student will be able to:

   a. Perform teaching demonstration.
   b. Evaluate peer instructors.

IV. **METHODS OF ASSESSMENT (TYPICAL)**

A. **FORMATIVE ASSESSMENT**

   1. Class discussion and group exercises relating to fire service training
   2. Evaluation of technical lesson plans
   3. Student and Instructor evaluation of teaching demonstrations
   4. Weekly quizzes
   5. Weekly written assignments based on students' technical lesson plans.

B. **SUMMATIVE ASSESSMENT**

   1. California State Fire Training certification examination
   2. Evaluation of final course development
3. Evaluation of twenty minute teaching demonstration
Yes:

Provide a cost breakdown for all items provided for a materials fee. Each item must become "tangible personal property" of the student upon payment of the fee and completion of the course.

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1) Explain how these materials are related to the Student Learning Goals for the course.

The State-provided materials contain regulations, procedures, and information pertinent to becoming a successful training instructor.

2) Explain how the materials have continuing value outside the classroom.

The information in the student manual is a reference book after the student has finished the course. The certification is necessary in order to be a training instructor.

3) Is the amount of material the student receives commensurate with the fee paid AND with the amount of material necessary to achieve the Student Learning Goals for the course AND provided at the district's actual cost?

Yes:

4) If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)
Proposal Impact

FSCI 353 Training Instructor 1B
**Course Revision Major**
John Sola

Courses

1. FSCI 373 *Active*
2. FSCI 374 *Active*
3. FSCI 375 *Active*

Cross Listed Courses

Programs

1. Fire Science Certificate of Achievement *New Program*
MATH 50 - Business Mathematics

Action Type: Course Revision Minor

Effective:

Primary Author: Sarah Curl

Other Author(s):

CC Representative Approval By:

CC Staff Review By:

Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

Course Data Elements

Credit Type: Requested
Credit Sub-Type: Requested
TOP Code: 1701.00  SAM Code:  State Classification: A
Open Entry/Open Exit: No  Work Experience: No

Instructor Load

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<th>Number of Hours</th>
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Material Fees

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<th>Item Name</th>
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</table>

These materials are related to the Student Learning Goals for the course because:

These items have continuing value because:

If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)

Enrollment Restrictions & Advisories

Prerequisite: MATH 20
I. **OVERVIEW**

The following information will appear in the 2009 - 2010 catalog

**MATH-50 Business Mathematics** 3 Units

**Prerequisite:** Satisfactory completion of MATH 20 or equivalent placement by MJC assessment process.

Mathematical background for business students. Problems of buying and selling, simple and compound interest, bank discounts, trade and cash discounts, installment payments, inventory markups, annuities, present value, commissions, taxes, payrolls, depreciation, and financial statements. Field trips are not required. Course is applicable to the associate degree.

II. **LEARNING CONTEXT**

Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

   a. Banking
      i. Bank statement

   b. Discounts
      i. Trade
      ii. Cash

   c. Markup and Markdown
      i. Based on cost
      ii. Based on selling price

   d. Payroll
      i. Gross pay
      ii. Social security
      iii. Medicare
      iv. Federal income tax
      v. Net pay

   e. Simple Interest
i. Present value
ii. Maturity value

f. Compound Interest
   i. Present value
   ii. Maturity value

h. Promissory Notes
   i. Proceeds
   ii. Discounts

i. Depreciation Methods
   i. Straight line
   ii. Units of production
   iii. Sum of the year's digits
   iv. Declining balance
   v. MACRS

j. Inventory Methods
   i. Ending inventory and cost of goods
      a. Specific identification
      b. Weighted average
      c. FIFO
      d. LIFO

k. Financial Ratios
   i. Current ratio
   ii. Acid test
   iii. Average day's collection
iv. Total debt to total returns
v. Return on equity
vi. Asset turnover
vii. Profit margin on net sales

I. Installment Buying
i. Cost of installment buying
ii. Paying off installment loan before due date

m. Cost of Home Ownership
i. Types of mortgages
ii. Amortization schedule
   a. Types of Mortgages
   b. Amortization Schedule

B. ENROLLMENT RESTRICTIONS

1. Prerequisites
   Satisfactory completion of MATH 20 or equivalent placement by MJC assessment process.

2. Requisite Skills
   Before entering the course, the student will be able to:
   a. Add, subtract, multiply, and divide with decimals, fractions, mixed numbers, and integers.
   b. Convert between fractions, decimals and percent.
   c. Solve applied problems involving percent.
   d. Solve simple equations.
   e. State and correctly use formulas.
   f. Calculate the area or volume of common objects, using both the English and metric systems of measurement.

C. HOURS AND UNITS

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D. METHODS OF INSTRUCTION (TYPICAL)
Instructors of the course might conduct the course using the following method:

1. Lecture and discussion for presentation of material
2. Demonstrations of mathematical techniques, applications, and problem-solving strategies by both instructor and students
3. Application of material to specific problems in homework and/or in-class exercises
4. Homework assignments and/or in-class exercises require students to analyze a given problem, select an appropriate procedure to solve the problem, apply the procedure correctly, and evaluate the adequacy of the result obtained and the procedure.

E. ASSIGNMENTS (TYPICAL)

1. **EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS**
   Time spent on coursework in addition to hours of instruction (lecture hours)
   1. Daily homework assignments requiring approximately two hours outside of class per hour in class
   2. Daily review of notes
   3. Ongoing review using flash cards or study sheets
   4. Preparation for midterm exams
   5. Preparation for final exam

2. **EVIDENCE OF CRITICAL THINKING**
   Assignments require the appropriate level of critical thinking
   1. Sales of Peanut M&M's chocolate candies are 20% of total M&M's sales. Sales of Plain M&M's chocolate candies are $320,000. What are the total sales of all Plain and Peanut M&M's?
   2. Laura needs $20,000 for college in 4 years. She can earn 8% compounded quarterly at her bank. How much must she deposit at the beginning of the year to have $20,000 in 4 years?
   3. From the following information, calculate the cost of ending inventory using the retail method:
      Jan. 1 - inventory at cost: $18,000
      Jan. 1 - inventory at retail: 58,000
      Net purchases at cost: 220,000
      Net purchases at retail: 376,000
      Net sales at retail: 364,000

F. TEXTS AND OTHER READINGS (TYPICAL)


III. DESIRED LEARNING

A. **COURSE GOAL**
   As a result of satisfactory completion of this course, the student should be prepared to:
   Solve mathematical problems involving buying and selling, simple and compound interest, bank discounts,
B. **STUDENT LEARNING GOALS**

*Mastery of the following learning goals will enable the student to achieve the overall course goal.*

1. **Required Learning Goals**

   *Upon satisfactory completion of this course, the student will be able to:*
   a. calculate trade and cash discounts including single and chain discounts.
   b. compute markups and markdowns based on both cost and selling price.
   c. determine an employee's gross pay, deductions for social security, Medicare, federal income tax, and net pay.
   d. compare the cost of credit from different sources and choose the most advantageous terms.
   e. calculate simple and compound interest, including present value.
   f. calculate proceeds and discounts for promissory notes.
   g. prepare depreciation schedules for the straight-line method, units of production method, sum of the year's digits method, declining balance method, and MACRS method.
   h. calculate present and future value of annuities and sinking funds.
   i. prepare bank reconciliation.
   j. calculate the cost of ending inventory and cost of goods sold for the inventory methods of specific identification, weighted average, FIFO, and LIFO.
   k. calculate financial ratios based on balance sheet and income statements of a concern. Include current ratio, acid test, average day’s collection, total debt to total assets, return on equity, asset turnover, and profit margin on net sales.
   l. calculate present value and future value of annuities and sinking funds.
   m. list types of mortgages, compute monthly mortgage payments, calculate total interest, and prepare an amortization schedule.
   n. calculate amount financed, finance charge and deferred payment.
   o. calculate the APR and monthly payment.
   p. calculate rebate and payoff by Rule of 78.
   q. solve various application problems using the objectives listed above.

IV. **METHODS OF ASSESSMENT (TYPICAL)**

A. **FORMATIVE ASSESSMENT**

1. Homework assignments
2. Midterm exams (excluding the following formats: multiple choice, open-book, take-home)
3. Participation
4. Quizzes

B. SUMMATIVE ASSESSMENT

1. Comprehensive 2 to 3 hour Final Exam (excluding the following formats: multiple choice, open-book, take-home)
Proposal Impact

MATH 50 Business Mathematics
**Course Revision Minor**
Sarah Curl

Courses

1. BUSAD 310 *Active*
2. INTDS 145 *Active*
3. INTDS 245 *Active*

Cross Listed Courses

Programs

1. Accounting Certificate of Achievement *New Program*
2. Accounting Clerk null *New Program*
3. Bookkeeping A.S. Degree *New Program*
4. Bookkeeping Certificate of Achievement *New Program*
5. Bookkeeping A.A. Degree Major *New Program*
6. Clerical Certificate of Achievement *New Program*
7. Office Administration Certificate of Achievement *New Program*
8. Professional Selling Certificate of Achievement *New Program*
9. Retail Management (WAFC) Certificate of Achievement *New Program*
PLSC 260 - Plant Disease Control

Action Type: Course Revision Minor
Effective:
Primary Author: David Baggett
Other Author(s):
CC Representative Approval By:
CC Staff Review By:
Division Dean Approval By:

Rationale for Course Action

Transfer and GE Status

CSU Transfer: Requested

Course Data Elements

Credit Type: Requested
Credit Sub-Type: Requested
TOP Code: 0103.00  SAM Code:  State Classification: I
Open Entry/Open Exit: No  Work Experience: Occupational

Instructor Load

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If the district is NOT the only source of these materials, explain why the students have to pay a fee to the district rather than supply the materials themselves. (Cost savings? Health/Safety? Consistency/Uniformity?)
Modesto Junior College
Course Outline of Record

PLSC 260

I. **OVERVIEW**

The following information will appear in the 2009 - 2010 catalog

**PLSC-260 Plant Disease Control**

Study of common local crop diseases, their economic importance, identification, life cycles, host and habitat relationships, and methods of control. Field trips are required. Course is applicable to the associate degree.

II. **LEARNING CONTEXT**

Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

   A. Introduction to plant pathology
   B. Disease classification
   C. Diagnosis of plant diseases
   D. Parasitism
   E. Disease development/dissemination
      1. Disease cycles
   F. How pathogens injure plants
      1. Effects of pathogens on plant function
   G. Plant defense mechanisms
   H. Genetics
      1. Disease resistance
   I. Environmental effects on disease development
   J. Epidemics
   K. Forecasting
   L. Types of plant diseases
      1. Fungi
         a. Lower fungi
         b. Higher fungi
      2. Bacteria
      3. Mycoplasms
      4. Parasitic higher plants
      5. Viruses
      6. Nematodes
      7. Physiogenic
      8. Environmental
   M. Nut tree diseases
   N. Grape diseases
   O. Landscape and turf diseases
   P. Vegetable crop diseases
   Q. Tree fruit diseases
   R. Plant protection
      1. Disease control programs
      2. Eradication methods
      3. Cultural control
         a. Quarantine – exclusion
      4. Biological control
      5. Chemical control
         a. Pesticide safety
b. Pesticide application

2. **Required Lab Content:**

   A. Introduction to plant pathology
   B. Disease classification
   C. Diagnosis of plant diseases
   D. Parasitism
   E. Disease development/dissemination
      1. Disease cycles
   F. How pathogens injure plants
      1. Effects of pathogens on plant function
   G. Plant defense mechanisms
   H. Genetics
   1. Disease resistance
   I. Environmental effects on disease development
   J. Epidemics
   K. Forecasting
   L. Types of plant diseases
      1. Fungi
         a. Lower fungi
         b. Higher fungi
      2. Bacteria
      3. Mycoplasms
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      5. Viruses
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         a. Pesticide safety
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B. **HOURS AND UNITS**

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C. **METHODS OF INSTRUCTION (TYPICAL)**

   *Instructors of the course might conduct the course using the following method:*

   1. Lecture, discussion, demonstrations, and reading assignments
   2. Colored slides, filmstrips, and films to supplement above.
   3. Preserved and fresh samples of diseased plants and pathogens.
4. Microscopic examination of infected plant material.
5. Student identification of samples of diseases.
6. Written lab reports with evaluation of subject matter covered.

D. ASSIGNMENTS (TYPICAL)

1. **EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS**
   
   *Time spent on coursework in addition to hours of instruction (lecture hours)*
   
   a. Preparation for written and practical exams.
   b. Daily reading of materials.
   c. Preparation of written laboratory reports.

2. **EVIDENCE OF CRITICAL THINKING**
   
   *Assignments require the appropriate level of critical thinking*
   
   Develop a complete disease management plan for a central valley crop that includes: a management calendar defining the timing of management practices and cultural, biological and chemical control applications for anticipated diseases; a complete list and description of the plant diseases for the commodity, including written and graphics descriptions of their signs and symptoms, causal agent, lifecycle and control options; and chemical control application methods and the laws and regulations governing their application.

   Write a laboratory report that includes the following: description of the lab/field trip including the specific plant diseases and controls observed; identification/discussion of those plant diseases, including signs, symptoms, and life cycles; description of disease management practices observed; and evaluation of the activity.

E. TEXTS AND OTHER READINGS (TYPICAL)


2. **Other**: U.C. IPM Manuals for specific crops, such as:

   U.C. Division of Agriculture and Natural Resources Publication #3343 (1992). Grape Pest Management (2nd ed.). Oakland, CA: University of California
   
   U.C. Division of Agriculture and Natural Resources Publication #3359 (1994). Pests of Landscape Trees and Shrubs. Oakland, CA: University of California
   
   U.C. Division of Agriculture and Natural Resources Publication #4053 (1989). Turfgrass Pests. Oakland, CA: University of California

III. DESIRED LEARNING

A. **COURSE GOAL**
   
   *As a result of satisfactory completion of this course, the student should be prepared to:*

   Develop a complete disease management plan for a central valley crop that includes: a management calendar defining the timing of management practices and cultural, biological and chemical control applications for anticipated diseases; a complete list and description of the plant diseases for the commodity, including written and graphics descriptions of their signs and symptoms, causal agent, lifecycle and control options; and chemical control application methods and the laws and regulations governing their application.
B. **STUDENT LEARNING GOALS**

_Mastery of the following learning goals will enable the student to achieve the overall course goal._

1. **Required Learning Goals**
   _Upon satisfactory completion of this course, the student will be able to:_
   a. Define the types of plant diseases
   b. Define common plant pathology terms.
   c. Classify plant pathogens into genera and specie.
   d. Identify laws, rules, and regulations for pest control.
   e. Select proper methods and timing of control.
   f. Discuss economic importance of biological control methods.
   g. Discuss economic importance of biological control methods.

2. **Lab Learning Goals**
   _Upon satisfactory completion of the lab portion of this course, the student will be able to:_
   a. Identify signs and symptoms of plant disease.
   b. List, describe and compare physiogenic diseases.
   c. Identify common plant diseases caused by fungi, bacteria, nematodes, and virus.

IV. **METHODS OF ASSESSMENT (TYPICAL)**

A. **FORMATIVE ASSESSMENT**

1. Correct identification and classification of at least 60% of a set of plant pathogen examples infecting common central valley crops by common and Latin (genera and species) names.
2. Evaluation of written and practical exams designed to test student knowledge of common plant diseases and their classification, in which students will answer with at least 60% accuracy.
3. Written laboratory reports that include: description of the lab/field trip including the specific plant diseases and controls observed; identification/discussion of those plant diseases, including signs, symptoms, and life cycles; description of disease management practices observed; and evaluation of the activity.

B. **SUMMATIVE ASSESSMENT**

1. Complete disease management plan for a central valley crop that includes: a management calendar defining the timing of management practices and cultural, biological and chemical control applications for anticipated diseases; a complete list and description of the plant diseases for the commodity, including written and graphics descriptions of their signs and symptoms, causal agent, lifecycle and control options; and chemical control application methods and the laws and regulations governing their application.
Proposal Impact

PLSC 260 Plant Disease Control
**Course Revision Minor**
David Baggett

Courses

Cross Listed Courses

Programs

1. Crop Science A.S. Degree *New Program*
2. Environmental Horticultural Science A.S. Degree *New Program*
3. Fruit Science A.S. Degree *New Program*
4. Fruit Science A.S. Degree *New Program*
5. Soil Science A.S. Degree *New Program*