Curriculum Committee
Meeting Agenda
Tuesday, April 14, 2015
3:30pm-5:00pm
Bistro

Debi Gresham	Martha Joyce	David Farrington	Karen Carroll
Roger Kennedy	Ali Mageehon	Georgann Willis	Kristi Hurt (Sec)
Bettie Wright (Sub)			

Business to be reviewed by Curriculum Committee:
Approval of the following Curriculum Committee Minutes- February 10, 2015

New Courses:
To be presented by Ken Carloni

- NR 242-Ecosystems of Southwest Oregon and Northern California
- NR 243-Historical Ecology of Pacific Northwest Landscapes
- NR 251-Principles of Fish and Wildlife Conservation
- NR 255A/B/C-Landscape Monitoring Methods

New Program
To be presented by Ken Carloni

- Natural Resources: Landscape Management Option

Course Revisions:
To be presented by Jillanne Michell

- ENG 201-Shakespeare
- ENG 202-Shakespeare
- ENG 203-Shakespeare

To be presented by Ken Carloni

- BI211-Principles of Biology
- CH112 – Fundamentals of Chemistry

Program Revisions:
To be presented by Gwen Soderburg-Chase

- Early Childhood Education, AAS

Next Curriculum Committee Scheduled for May 12, 2015

Curriculum Committee
Meeting Minutes
Tuesday, February 10, 2015
3:30pm-5:00pm
SNY 14

Debi Gresham	X Martha Joyce	X David Farrington	X Karen Carroll
Roger Kennedy	X Ali Mageehon	X Georgann Willis	X Clara Smithey (Sec)
X Bettie Wright (Sub)			

Business to be reviewed by Curriculum Committee:
Approval of the following Curriculum Committee Minutes- January 13, 2015
Minutes not attached - Tabled

New Courses:
To be presented by Cheryl Yoder:
- PE 185QI- Swim for Fitness- Inter

Update action verbs used in Outcomes – Okay to start offering SP 15 – Forward to IC

Program Revisions:
To be presented by
- Drafting Pathways Certificate
    - Deleted math as a requirement for the drafting pathways certificate.

2016-2017 catalog effective date – Forward to IC

Course Revisions:
To be presented by Clay Baumgartner:

- ENGR 111-
    - Change pre-requisite from MTH 95 to MTH 65.

Send Martha outcomes with updated action verbs & filled out course revision form – Forward to IC

Next Curriculum Committee Scheduled for Spring Term

Curriculum Committee
Meeting Minutes
Tuesday, April 14, 2015
3:30pm-5:00pm
Bistro

Debi Gresham	Martha Joyce	David Farrington	Karen Carroll
Roger Kennedy	Ali Mageehon	Georgann Willis	Kristi Hurt (Sec)
Bettie Wright (Sub)			

Business to be reviewed by Curriculum Committee:
Approval of the following Curriculum Committee Minutes- February, 2015

New Courses:
To be presented by Ken Carloni

- NR 242-Ecosystems of Southwest Oregon and Northern California
- NR 243-Historical Ecology of Pacific Northwest Landscapes
- NR 251-Principles of Fish and Wildlife Conservation
- NR 255A/B/C-Landscape Monitoring Methods

New Program
To be presented by Ken Carloni

- Natural Resources: Landscape Management Option

Course Revisions:
To be presented by Jillanne Michell

- ENG 201-Shakespeare
- ENG 202-Shakespeare
- ENG 203-Shakespeare

To be presented by Ken Carloni

- BI211-Principles of Biology
- CH112 – Fundamentals of Chemistry

Program Revisions:
To be presented by Gwen Soderburg-Chase

- Early Childhood Education, AAS

Next Curriculum Committee Scheduled for May 12, 2015

UCC Course Outline

Course No:	NR 242
Course Credit:	4
Lecture Hrs/wk:	3
Lab Hrs/Wk:	3
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	66
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	5.1 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Ecosystems of Southwest Oregon and Northern California**
Developed By**:** Ken Carloni
Revision Date:
Review Date:

COURSE DESCRIPTION:

This is a hybrid course taught partly online and partly during a 6 day bus tour of Southwestern Oregon and Northern California. Resources for learning the distributions, unique species compositions, population interactions, nutrient and energy cycles, disturbance processes, and ecological histories of the landscapes of this region will be presented online. The bus tour begins immediately after the spring term ends, and will emphasize applications of this information during stops in the Siskiyou Mountains, Smith River, Redwood National Park, Trinidad State Beach, the Trinity River, Lassen Volcanic National Park, McArthur-Burney Falls State Park, Lava Beds National Monument, Crater Lake National Park, the North Umpqua River, and other sites of ecological interest. Students should be reasonably fit and prepared to hike several miles over the course of the tour on easy to moderately difficult trails.

COURSE OUTCOMES:

Students who successfully complete this course will be able to:

- Map the major ecoregions of SW Oregon and N California.
- Describe how climate, soils, and physiography influence the structure and function of ecological communities.
- Describe the region's significant disturbance agents, explain the process of ecological succession, and recognize species commonly associated with pioneer and climax communities.
- Recognize forest, shrub, grassland and other community types of SW Oregon and N California based on their geographic location and species composition.
- Identify the dominant plant species found in each ecosystem we visit.
- Recognize the interrelationships between pattern and process in the ecosystems we visit.

COURSE OUTLINE:

- Use of dichotomous keys, reference resources
- Physical environment of the region
- Ecosystem pattern and process at multiple scales
- Disturbance processes, ecological succession, and Historic Range of Variability
- Dominant plant species of the region's ecosystems
- Types and distributions of:
    - Conifer forests
    - Hardwood forests
    - Shrub and steppe communities
    - Grasslands and savannas
    - Wetland and riparian habitats
    - Coastal communities
- Field tour journal
- Final project

UCC New Course Approval

Basic Information

Name of New Course: Ecosystems of Southwest Oregon and Northern California
Contact: Ken Carloni
Contact Title: Dept. Chair
Department: Science
Supervisor: Jason Aase
Program: Natural Resources: Landscape Monitoring Option

New Course Information

Date, Year, and Term of Proposed Implementation: Spring Term 2016
Course Title: **Ecosystems of Southwest Oregon and Northern California**
Course Number: NR 242
Number of Credits: 4

Activity Code:
_X_100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE – Unknown
__361 - ACE - Health and Fitness
__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type

__Lecture (11 hrs/credit)
__Lab (30 hrs/credit)
__Lecture/Lab (20 hrs/credit)
_X_Other: 33 clock hrs. lecture; 33 clock hrs. lab

Number of Hours:
33 clock hrs. lecture; 33 clock hrs. lab
5.1 ILCs

Co- and Pre-Requisite Information
Previous course in Biology or Natural Resources recommended.

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.
__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

Catalog Course Description – ***see attached course outline***
This is a hybrid course taught partly online and partly during a 6 day bus tour of Southern Oregon and Northwestern California. Resources for learning the distributions, unique species compositions, population interactions, nutrient and energy cycles, disturbance processes, and ecological histories of the landscapes of this region will be presented online. The bus tour begins immediately after the spring term ends, and will emphasize applications of this information during stops in the Siskiyou Mountains, Smith River, Redwood National Park, Trinidad State Beach, the Trinity River, Lassen Volcanic National Park, McArthur-Burney Falls State Park, Lava Beds National Monument, Crater Lake National Park, the North Umpqua River, and other sites of ecological interest. Students should be reasonably fit and prepared to hike several miles over the course of the tour on easy to moderately difficult trails.

Grading Option: A-F

Load Factor: 5.1 ILCs

Award Information:
Please select all that apply.

__AA
_X_AS
__AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

If you selected 'AAOT' above, please select the area of distribution below.
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science

__Speech/Oral Communication
__Writing
__Cultural Literacy

Required Course Information
Natural Resources: Landscape Monitoring Option

New Course Justification

Required for Natural Resources A.S.

Course Impacts *(Select all that apply)*

_X_Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description

Costs for this and other new courses in the NR program are largely covered by scaling back low-enrolled sections and increasing adjunct loads.

Additional Process Items

_X_ Course Outline - required

COURSE OUTCOMES:

Students who successfully complete this course will be able to:

- Map the major ecoregions of SW Oregon and N California.
- Describe how climate, soils, and physiography influence the structure and function of ecological communities.
- Describe the region's significant disturbance agents, explain the process of ecological succession, and recognize species commonly associated with pioneer and climax communities.
- Recognize forest, shrub, grassland and other community types of SW Oregon and N California based on their geographic location and species composition.
- Identify the dominant plant species found in each ecosystem we visit.
- Recognize the interrelationships between pattern and process in the ecosystems we visit.

COURSE OUTLINE:

- Use of dichotomous keys, reference resources
- Physical environment of the region
- Ecosystem pattern and process at multiple scales
- Disturbance processes, ecological succession, and Historic Range of Variability
- Dominant plant species of the region's ecosystems
- Types and distributions of:
    - Conifer forests
    - Hardwood forests
    - Shrub and steppe communities
    - Grasslands and savannas
    - Wetland and riparian habitats
    - Coastal communities
- Field tour journal
- Final project

UCC New Course Approval

Basic Information

Name of New Course: Historical Ecology of Pacific Northwest Landscapes
Contact: Ken Carloni
Contact Title: Dept. Chair
Department: Science
Supervisor: Jason Aase
Program: Natural Resources: Landscape Monitoring Option

New Course Information

Date, Year, and Term of Proposed Implementation: Winter Term 2016
Course Title: **Historical Ecology of Pacific Northwest Landscapes**
Course Number: NR 243
Number of Credits: **3**

Activity Code:
_X_100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE – Unknown
__361 - ACE - Health and Fitness
__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type

_X_Lecture (11 hrs/credit)
__Lab (30 hrs/credit)
__Lecture/Lab (20 hrs/credit)
__Other:

Number of Hours:
33 clock hours/term

Co- and Pre-Requisite Information
Pre- or Corequisite: WR 121

Co- and Pre-Requisite Enforcement
_X_Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

Catalog Course Description – ***see attached course outline***
Students will learn about changes in the landscapes of the Pacific Northwest from the end of the last ice age to the present with an emphasis on Southwestern Oregon and Northern California. We will examine the changing uses of the environment by a succession of cultures, and their effects on landscape structure and function by using a range of tools to analyze archaeological, historical end ecological data to reconstruct historic landscapes.

Grading Option: A-F

Load Factor: 3 ILCs

Award Information:

__AA
_X_AS
__AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

If you selected 'AAOT' above, please select the area of distribution below.
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy

Required Course Information
Natural Resources: Landscape Monitoring Option

New Course Justification

Required for A.S. in Natural Resources

Course Impacts *(Select all that apply)*

_X_Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
For any of the course impacts listed above, please describe.

Replacement Course For:
n/a

Additional Process Items

_X_ Course Outline - required

COURSE OUTCOMES
COURSE OUTCOMES

Upon completion of the course, you will be able to:

- Trace the major events in the ecological and cultural history of the Pacific Northwest from the late Pleistocene to the present.
- Describe the methods and data used to reconstruct historic landscape conditions.
- Use historical, archaeological and ecological data to research and reconstruct historic landscape conditions.
- Apply the concept of Historic Range of Variability to landscapes through time.
- Analyze the impacts of the succession of cultures on landscape structure and function in SW Oregon and N California.

COURSE OUTLINE

- Introduction to the Theory and Practice of Historical Ecology
- Historic Range of Variability
- Life After the Ice Age and the Peopling of the Americas
- Cultural Evidence I: Archaeology and Ethnobiology
- Cultural Evidence II: Historic Documents, Images and Data.
- Ecological Evidence I: Dendrochronology and Vegetation Structure
- Ecological Evidence I: Pollen, Phytoliths and Geomorphology
- The Little River Watershed: Indians, Fire and the Land
- Natural Resource Conservation: Fatesheds and Management Options

UCC Course Outline

Course No:	NR 243
Course Credit:	3
Lecture Hrs/wk:	3
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	33/term
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	WR 121
Co-Requisite:	WR 121
Load Factor:	3 ILCs
Activity Code:	100
CIPS:	260101

Course Title: Historical Ecology of Pacific Northwest Landscapes
Developed By**:** Ken Carloni
Development Date: Feb. 2015
Revision Date:
Review Date:

COURSE DESCRIPTION:

Students will learn about changes in the landscapes of the Pacific Northwest from the end of the last ice age to the present with an emphasis on Southwestern Oregon and Northern California. We will examine the changing uses of the environment by a succession of cultures, and their effects on landscape structure and function by using a range of tools to analyze archaeological, historical end ecological data to reconstruct historic landscapes.

COURSE OUTCOMES

Upon completion of the course, you will be able to:

- Trace the major events in the ecological and cultural history of the Pacific Northwest from the late Pleistocene to the present.
- Describe the methods and data used to reconstruct historic landscape conditions.
- Use historical, archaeological and ecological data to research and reconstruct historic landscape conditions.
- Apply the concept of Historic Range of Variability to landscapes through time.
- Analyze the impacts of the succession of cultures on landscape structure and function in SW Oregon and N California.

COURSE OUTLINE

- Introduction to the Theory and Practice of Historical Ecology
- Historic Range of Variability
- Life After the Ice Age and the Peopling of the Americas
- Cultural Evidence I: Archaeology and Ethnobiology
- Cultural Evidence II: Historic Documents, Images and Data.
- Ecological Evidence I: Dendrochronology and Vegetation Structure
- Ecological Evidence I: Pollen, Phytoliths and Geomorphology
- The Little River Watershed: Indians, Fire and the Land
- Natural Resource Conservation: Fatesheds and Management Options

UCC New Course Approval

Basic Information

Name of New Course: Principles of Fish and Wildlife Conservation
Contact: Ken Carloni
Contact Title: Dept. Chair
Department: Science
Supervisor: Jason Aase
Program: Natural Resources: Landscape Monitoring Option

New Course Information

Date, Year, and Term of Proposed Implementation: Winter Term 2016
Course Title: **Principles of Fish and Wildlife Conservation**
Course Number: NR **251**
Number of Credits: **3**
Activity Code:
_X_100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE – Unknown
__361 - ACE - Health and Fitness
__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type

_*X*_Lecture (11 hrs/credit)
__Lab (30 hrs/credit)
__Lecture/Lab (20 hrs/credit)
__Other:

Number of Hours:
33 clock hours/term

Co- and Pre-Requisite Information
A previous course in Biology or Natural Resources recommended.

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.
__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

Catalog Course Description – *see attached course outline*
History of conservation and natural resource use; ecological principles, and social and economic limitations of conservation; principles and practices of wildlife and fisheries management; role of research in management.

Grading Option: A-F

Load Factor: 3 ILCs

Award Information:
Please select all that apply.

__AA
_X_AS
__AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

If you selected 'AAOT' above, please select the area of distribution below.
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy

Required Course Information
Natural Resources: Landscape Monitoring Option

New Course Justification

Student Need for Course *(Please describe)*
Required for A.S. in Natural Resources

Course Impacts *(Select all that apply)*

_X_Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
For any of the course impacts listed above, please describe.

Replacement Course For:
n/a

Additional Process Items

_X_ Course Outline - required
__ Start-Up Budget (if needed)
__Advisory Committee Minutes (if needed)

COURSE OUTCOMES
Upon completion of the course, you will be able to:

- Describe the basic scientific principles underlying the management and conservation of fish and wildlife.
- Outline the legal, social, cultural, and political institutions that affect wildlife conservation and management.
- Explain how scientific knowledge and research are used in the conservation and management of our natural resources.
- Develop and apply a vocabulary related to wildlife and fish ecology.

COURSE OUTLINE

I. Social and political aspects of wildlife conservation and management

- History of fisheries and wildlife conservation in US
- Human Attitudes – Values & Philosophy
- Economics of Wildlife and Fish Conservation
- Overabundant Wildlife

II. Scientific principles of wildlife management

- Ecological Principles
- Evolutionary Biology
- Population Dynamics
- Endangered Species
- Conservation Biology
- Exotic Species
- Disease Ecology

III. Scientific principles of ecosystem management

- Principles of Fish and Wildlife Harvest Management
- Ecosystem Management
- Landscape Ecology
- Marine Systems
- Agricultural Ecosystems

UCC Course Outline

Course No:	NR 251
Course Credit:	3
Lecture Hrs/wk:	3
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	33/term
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	**Recommended: A previous course in Biology or Natural Resources**
Co-Requisite:	
Load Factor:	3 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Principles of Fish and Wildlife Conservation**
Developed By**:** Ken Carloni
Development Date: Feb. 2015
Revision Date:
Review Date:

COURSE DESCRIPTION:

History of conservation and natural resource use; ecological principles, and social and economic limitations of conservation; principles and practices of wildlife and fisheries management; role of research in management.

COURSE OUTCOMES

Upon completion of the course, you will be able to:

- Describe the basic scientific principles underlying the management and conservation of fish and wildlife.
- Outline the legal, social, cultural, and political institutions that affect wildlife conservation and management.
- Explain how scientific knowledge and research are used in the conservation and management of our natural resources.
- Develop and apply a vocabulary related to wildlife and fish ecology.

COURSE OUTLINE

I. Social and political aspects of wildlife conservation and management

- History of fisheries and wildlife conservation in US
- Human Attitudes – Values & Philosophy
- Economics of Wildlife and Fish Conservation
- Overabundant Wildlife

II. Scientific principles of wildlife management

- Ecological Principles
- Evolutionary Biology
- Population Dynamics
- Endangered Species
- Conservation Biology
- Exotic Species
- Disease Ecology

III. Scientific principles of ecosystem management

- Principles of Fish and Wildlife Harvest Management
- Ecosystem Management
- Landscape Ecology
- Marine Systems
- Agricultural Ecosystems

UCC New Course Approval

Basic Information

Name of New Course: Landscape Monitoring Methods
Contact: Ken Carloni
Contact Title: Dept. Chair
Department: Science
Supervisor: Jason Aase
Program: Natural Resources: Landscape Monitoring Option

New Course Information

Date, Year, and Term of Proposed Implementation: Fall 2016
Course Title: Landscape Monitoring Methods
Course Number: NR 255A, NR 255B, NR 255C
Number of Credits: 2
Activity Code:
_X_100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE – Unknown
__361 - ACE - Health and Fitness
__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type

_*X*_Lecture (11 hrs/credit)
_X_Lab (30 hrs/credit)
__Lecture/Lab (20 hrs/credit)
__Other:

Number of Hours:
1 hr. lecture, 3 hrs. lab per week; 44 clock hours per term

Co- and Pre-Requisite Information
Pre-or Corequisite: NR 251, PE 255

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.
_X_Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

Catalog Course Description – *see attached course outline*

The NR 255 series of courses emphasize sampling design and methods for quantifying physical, aquatic, and terrestrial resources in the Pacific Northwest with geographic emphasis on southwestern Oregon and northern California. Students will learn and apply standard field and laboratory protocols used by the US Forest Service, the Bureau of Land Management, the Oregon Dept. of Fish and Wildlife, the Oregon Department of Environmental Quality, and other state and national land and resource management agencies. NR 255A is offered Fall term, and will focus on resources typically monitored from late September to early December. NR 255B focuses on resources typically monitored during the Winter term from early January through late March, and NR 255C is offered Spring term with emphasis on monitoring protocols typically conducted from early April through early June.

Grading Option: A-F

Load Factor: 3.1 ILCs

Award Information:
__AA
_X_AS
__AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

If you selected 'AAOT' above, please select the area of distribution below.
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy

Required Course Information
Required for Associate of Science in Natural Resources, Landscape Monitoring option

New Course Justification
Integral part of Natural Resources AS degree.

Course Impacts *(Select all that apply)*
_X_Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
These courses will be taught by current full- and part-time Science Dept. faculty requiring no new faculty and minimal increase in department personnel budget due to decreasing enrollments in other classes.

Replacement Course For:
n/a

Additional Process Items
_X_ Course Outline - (below)
__ Start-Up Budget (if needed)
__Advisory Committee Minutes (if needed)

COURSE OUTCOMES:

Upon successful completion of NR 255A, NR 255B, or NR 255C students will be able to:

- Describe how monitoring programs are used to address research questions and management issues in population, habitat and ecosystem management; restoration ecology; and sustainable resource management.
- Explain concepts of systematic field sampling and data collection.
- Use common monitoring tools and techniques, and know the circumstances under which they are most effectively applied.
- Collect data in a systematic manner employing a variety of standard sampling protocols used by local and regional agency professionals.
- Demonstrate proficiency in basic data handling, interpretation, display, and communication technologies using a variety of presentation media.

COURSE OUTLINE

- Introduction to landscape monitoring.
- Monitoring program design and implementation.
- Endangered, threatened and other categories of species of concern in the PNW.
- Data analysis and presentation
- Use of equipment and protocols for measuring ecological parameters that may include (but are not limited to):
    - Water quality including pH, temperature, dissolved oxygen, conductivity, turbidity, and flow rate.
    - Stream function including macroinvertebrate diversity, spawning substrate and vertebrate species surveys.
    - Snag and down wood inventories.
    - Small mammal/prey-base monitoring.
    - Vegetation surveys.
    - Aquatic and terrestrial mollusk surveys.
    - Snorkeling for salmonids, amphibians and other aquatic species
    - Owl, murrelet, and neotropical bird surveys
    - Tree climbing for red tree vole, lichens, and other Survey and Manage species under the Northwest Forest Plan.
    - Trail cameras and radio telemetry.
    - Invasive species presence/absence.

UCC Course Outline

Course No:	**NR 255A/B/C**
Course Credit:	2
Lecture Hrs/wk:	1
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	3
Practicum Hrs/Wk:	
Clock Hours:	44
Length of Course	11 wks.
Banner enforced Prerequisite:	NR 251, PE 255
Instructor enforced Prerequisite:	
Co-Requisite:	NR 251, PE 255
Load Factor:	3.1 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Landscape Monitoring**
Developed By**:** Ken Carloni
Development Date: Feb. 2015
Revision Date:
Review Date:

COURSE DESCRIPTION:

The NR 255 series of courses emphasize sampling design and methods for quantifying physical, aquatic, and terrestrial resources in the Pacific Northwest with geographic emphasis on southwestern Oregon and northern California. Students will learn and apply standard field and laboratory protocols used by the US Forest Service, the Bureau of Land Management, the Oregon Dept. of Fish and Wildlife, the Oregon Department of Environmental Quality, and other state and national land and resource management agencies. **NR 255A** is offered Fall term, and will focus on resources typically monitored from late September to early December. **NR 255B** focuses on resources typically monitored during the Winter term from early January through late March, and **NR 255C** is offered Spring term with emphasis on monitoring protocols typically conducted from early April through early June.

COURSE OUTCOMES:

Upon successful completion of NR 255A, NR 255B, or NR 255C students will be able to:

- Describe how monitoring programs are used to address research questions and management issues in population, habitat and ecosystem management; restoration ecology; and sustainable resource management.
- Explain concepts of systematic field sampling and data collection.

- Use common monitoring tools and techniques, and know the circumstances under which they are most effectively applied.
- Collect data in a systematic manner employing a variety of standard sampling protocols used by local and regional agency professionals.
- Demonstrate proficiency in basic data handling, interpretation, display, and communication technologies using a variety of presentation media.

COURSE OUTLINE

- Introduction to landscape monitoring.
- Monitoring program design and implementation.
- Endangered, threatened and other categories of species of concern in the PNW.
- Data analysis and presentation
- Use of equipment and protocols for measuring ecological parameters that may include (but are not limited to):
    - Water quality including pH, temperature, dissolved oxygen, conductivity, turbidity, and flow rate.
    - Stream function including macroinvertebrate diversity, spawning substrate and vertebrate species surveys.
    - Snag and down wood inventories.
    - Small mammal/prey-base monitoring.
    - Vegetation surveys.
    - Aquatic and terrestrial mollusk surveys.
    - Snorkeling for salmonids, amphibians and other aquatic species
    - Owl, murrelet, and neotropical bird surveys
    - Tree climbing for red tree vole, lichens, and other Survey and Manage species under the Northwest Forest Plan.
    - Trail cameras and radio telemetry.
    - Invasive species presence/absence.

Name of Program: Natural Resources: Landscape Management Option
Contact Name and Title: Ken Carloni, Ph.D., Science Dept. Chair
Department: Science
Supervisor: Jason Aase, Dean of Arts and Sciences

Program-Specific Information
Date, Year, and Term of Proposed Implementation:
Fall 2015

Program Award:
__ Less than 1 year certificate
__ 1 year certificate
__ 2 year certificate
__ Career Pathway certificate
AS Degree

Number of Credits: 95

New Program Title: **Natural Resources: Landscape Monitoring Option**

Program Description

This is an Associate of Science degree that articulates with the Bachelors of Science degree in Natural Resources at Oregon State University's College of Forestry. This A.S. program aims to educate students in the theory and practice of ecosystem monitoring, and to give them broad laboratory and field training in measuring and analyzing ecological conditions at the microsite, community, and landscape levels.

Labor Market Need

From 2012 to 2022, OLMIS projects the following job growth percentages for Natural Resources graduates in related degrees along with current average wages:

		Avg. Salary/Yr.
Biological Technicians (AS+)		
Oregon	+14.3%	$39,656
Douglas Co.	+2.5%	n/a
Lane Co.	+14.8%	$40,088
Conservation Scientists (BS+)		
Oregon	+11.0%	$71,742
Douglas Co.	+16.7%	$62,140
Lane Co.	+16.0%	n/a
Zoologists and Wildlife Biologists (BS)		
Oregon	+15.2%	$66,716
Douglas Co.	+7.3%	$65,241
Lane Co.	+11.1%	$64,094

Environmental Scientists and Specialists (BS+)		
Oregon	+16.8%	$71,989
Douglas Co.	+12.5%	n/a
Lane Co.	+10.1%	$66,666
Hydrologists (BS)		
Oregon	+15.2%	$83,067
Douglas Co.	+20.0%	n/a
Lane Co.	+12.5%	n/a
Natural Sci. Managers		
Oregon	+10.2%	$105,142
Douglas Co.	0.0%	$84,811
Lane Co.	+11.6%	$106,046

In addition to these positive local and regional job projections and earning potentials, pending legislation and current trends will require more thorough monitoring and analysis of both site-level and landscape-level data to plan and monitor the ecological practices that will increasingly be used to manage natural resources. Demand for broadly trained ecosystem scientist/managers will therefore increase in the public land management agencies to guide management activities, and also in private industry to meet state and federal standards.

The need for such specialists will be particularly strong in Douglas Co. and surrounding counties over the next several years, where many senior-level scientists and technologists are nearing retirement.

Target Student Population:

We expect to attract students of all ages who are confident in the outdoors, who are committed to the conservation and restoration of native biodiversity, and who are seeking well-paying employment associated with abundant opportunity for professional growth and high levels of job satisfaction.

Program Outcomes:

Students who graduate with an Associate of Science degree in Natural Resources will be prepared to transfer seamlessly to Oregon State University's Natural Resources program in the College of Forestry. Students will be able to:

1. Recognize and classify common plant and animal species in the field, and use dichotomous keys to determine or verify their identity.

2. Describe key ecological cycles, disturbance processes, and ecological succession in landscapes of the Pacific Northwest.

3. Describe the ways in which utilization, management, and allocation of natural resources are affected by 1) laws, policies, and economic factors (both market

and non-market) operating on public vs. private lands, 2) ownership patterns of private and public resources, and 3) societal characteristics (including demographic, cultural, ethnic, and social values).

4. Recognize and describe the interrelationships between the ecological communities that produce natural resources and the social communities that consume and manage them.

5. Discuss historic range of ecosystem variability, human impacts that influence ecosystem change, and the future sustainability of natural resources.

6. Work safely and navigate efficiently in the field using map, compass, GPS and other orienteering and data gathering technologies.

7. Demonstrate current protocols for gathering and recording data in the field and lab.

8. Demonstrate effective literature review and conventional report writing skills.

9. Map and quantify a range of natural resources at multiple scales.

10. Analyze numerical and spatial environmental data, and apply current theory to those findings to solve problems in natural resource management.

11. Envision and plan desired future landscapes that will achieve a set of natural resource-related objectives, prescribe management actions needed to achieve those objectives, and evaluate the success of these actions.

12. Communicate effectively orally, in writing, and through current presentation technologies with audiences of diverse backgrounds.

13. Work collaboratively within and among professional interdisciplinary teams and diverse community groups to resolve management problems and achieve management objectives

14. Self-assess professional strengths and weaknesses, and be committed to lifelong learning and professional development.

Program Impacts:

_X_Standard Instructional Costs (staff, materials, equipment or facilities) are required.
___Additional instructional costs (staff, materials, equipment or facilities) are needed.
___Impact to other divisions in terms of scheduling or staffing.

Program Impact Description:
Current full- and part-time instructors will teach the bulk of the new courses included in this program. Although the Science Dept. is already well equipped with the materials and apparatus necessary to teach most of the new course content, we anticipate the need for several thousand dollars worth of specialized equipment. The cost for this will be covered by the SCIFEE budget using student lab fees we already charge.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):
Courses for this program will be taught by full- and part-time instructors currently employed in the Science Dept. as well as one other part-time instructor currently being hired for an additional course. This is a particularly opportune time to begin this program -- because of falling enrollments throughout UCC, most of the cost of this program will be offset by a) closing extra sections of classes we currently teach in the Science Dept. but are under-enrolled, and b) by increasing adjunct teaching loads that are paid at a lower rate than full-time faculty. The recently submitted 2015-16 Science Dept. budget only includes an additional $3,000 over last year's personnel budget, and this already accounts for step increases, so the financial impact on the Dept. will be very small. We hope to receive a reasonable marketing effort by UCC's marketing department, and Science Dept. faculty will recruit new students through our high school and other community contacts.

Program Standards

Standard A – Need:

The community college provides clear evidence of the need for the program.

This Associate of Science program will complete the Umpqua Natural Resources Pathway from high school diploma to a Bachelor of Science degree in Natural Resources from Oregon State University's College of Forestry. Courses selected to meet UCC A.S. requirements also meet many OSU Baccalaureate Core, Natural Resource Core, and Specialization requirements. Upper division OSU classes necessary to meet the remaining B.S. degree requirements are all available online through OSU's Ecampus. Therefore, place-bound students will be able to get their hands-on experiences at UCC, and the rest of the courses for their 4-year degree entirely online, sparing them the expense and disruption of a move to Corvallis.

OSU's Natural Resources program has grown every year since its inception, so UCC students will progress to a robust and vibrant program. Positive labor market trends have been noted above, and according to a recent report in The Oregonian (1/14/2015), OSU has just kicked off a $30 million fundraising effort as part of a planned $60 million expansion of its forestry school. It wants to double enrollment to 2,000 students due to projected increases in the demand for more trained foresters.

Standard B – Collaboration:

The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.

For the last two years, UCC has partnered with the Phoenix School, Oregon Youth Conservation Corps, Umpqua Watersheds, and the Umpqua National Forest on our youth-oriented "Learn, Earn, and Serve" program funded by the USFS and the National Fish and Wildlife Foundation as part of the "Umpqua Natural Resources Pathway" collaboration with these organizations. This year we will put two crews of 6 youth through UCC classes and out into the field for the third summer working with Forest Service and BLM specialists. We will continue to strengthen and expand these and other partnerships designed to create authentic field experiences for our students while providing reliable data to public land managers. We are currently in talks with the Umpqua National Forest, the Roseburg BLM, ODF&W, the Roseburg Urban Sanitary Authority, the Partnership for Umpqua Rivers, and the Cow Creek Tribe to integrate a wide range of approved protocols into the education and training experiences offered to Natural Resources students.

The chairs of the Science and Engineering departments have recently begun discussions on collaborating on additional articulated Associate of Science degrees in Forest Engineering and Forest Management that will share courses developed for this program. After the roll-out of this program, we also work toward developing similar degrees that will articulate with Fish and Wildlife B.S. degrees in OSU's College of Agriculture.

Standard C – Alignment:

The program is aligned with the appropriate education, workforce development, and economic development activities.

This A.S. program fills in the missing step of the Umpqua Natural Resources Pathway from high school to UCC to OSU. It will articulate with OSU's B.S. in Natural Resources with an option in Landscape Monitoring. Existing and newly designed UCC courses included in the program will all satisfy requirements for OSU Baccalaureate Core, Natural Resources Core, and the Landscape Monitoring option. This option is also designed to allow place-bound students to complete the remainder of their B.S. in Natural Resources through OSU's Ecampus without having to leave the UCC community.

At every opportunity, the program will partner with agency land managers to provide ecological monitoring opportunities for students on public lands, and high quality data to agency scientists.

Standard D – Design:

The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.

This program provides a rigorous course of study with new classes whose outcomes are closely aligned with comparable courses at OSU, and existing classes that meet OSU Baccalaureate Core requirements. The Natural Resources major with our newly designed Landscape Monitoring option is unique in that it gives students hands-on field and laboratory experience earlier in their educational career working on public lands in the Umpqua Basin. We have already developed a close working and teaching relationship with a number of agency specialists currently working in the field – partnerships that we plan to strengthen and expand as the program grows. These relationships will allow us to stay current in standard protocols for collecting and analyzing ecological data, and will keep us in close touch with emerging scientific and social issues associated with Natural Resources conservation and utilization.

Standard E – Capacity:

The community college identifies and has the resources to develop, implement, and sustain the program.

This program along with six of the twelve new courses were designed and developed by the Science Dept. Chair, who is not requesting any compensation for his time. A small amount of funding will be requested for books and other reference materials. The remaining courses were developed by current Science Dept. faculty who may receive up to $300 each for their final development and implementation (although none so far have indicated that they will ask for that compensation).

The new courses all fit into the current full- and part-time faculty ILC loads, and will replace a number of sections of other classes that have been cancelled because of declining enrollments campus-wide.

Proposed Courses – please attach new course outlines

Course #	Course Title	Credits
WR 121	English Comp. Intro to Argument	4
WR 227	Technical Report Writing	4
SP 111	Fundamentals of Public Speaking	4
MTH 111	Elementary Functions	5
BI 211	Principles of Biology I	5
BI 212	Principles of Biology II	5
BI 213	Principles of Biology III	5
BOT 203	Field Botany	4
CH 112	Fundamentals of Chemistry	5
ENG 230	Environmental Literature	4
GIS 134	Introduction to GIS	3
GIS 135	Geographical Information Systems II	3
MTH 243	Intro to Statistics	5
NR 201	**Intro to Natural Resources**	3
NR 205	**Soil Science**	4
NR 221	**Water Resource Science**	4
NR 240	**Forest Ecosystems**	3
NR 241	**Field Dendrology**	4
NR 242	**Ecosystems of SW Oregon and N California (hybrid)**	4
NR 243	**Historical Ecology of PNW Landscapes**	3
NR 251	**Principles of Fish and Wildlife Conservation**	3

NR 255A	**Landscape Monitoring Fall**	2
NR 255B	**Landscape Monitoring Winter**	2
NR 255C	**Landscape Monitoring Spring**	2
NR 295	**Environmental Dispute Resolution**	3
PE 255	Wilderness Survival	2
	Total credits for Program	**95**
	Courses in **BOLD** type are new courses developed for this program. Outlines for these new classes are included below.	

Additional Process Items

__Required: Labor Market Information (LMI) Form (attached)
__Required: Course Outlines for all new courses (attached)
__Specialized Form: Advisory Committee (not needed for A.S.)
__Specialized Form: Start Up Budget (n/a -- see Standard E above)

Labor Market Supply and Demand Factors for Community College Program Evaluation

(LMI Worksheet)

College	**Umpqua Community College**		
Contact Person	**Ken Carloni, Science Dept. Chair**		
E-Mail	**Ken.carloni@umpqua.edu**	**Phone**	**(541) 440-7641**

Name of proposed program		**Natural Resources: Landscape Monitoring Option**	
Credential(s) or form(s) of recognition proposed		Associate of Science	
CIP code	260101	**CIP title**	Biology

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Information is available to complete much of this form at the Employment Department's Web site http://www.QualityInfo.org in the *Occupational Information Center* and the *Educational Information Center*. If necessary, the college may contact the Employment Department's Occupational Economist at (503) 947-1233 with questions about this information. Not all information needed to establish and document need is necessarily found through Oregon Employment Department resources. Please refer to the section, "Labor Market Supply and Demand Factors Explanation" later in this document for additional information concerning each question. It is the college's responsibility to utilize any sources of information available to adequately provide evidence of need.

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1. What are the common job titles for the occupations that use the skills your program will teach?

Biologist, Fisheries Biologist, Wildlife Biologist, Botanist, Restoration Forester, Conservation Scientist, Natural Resources Manager, Environmental Scientist, Hydrologist, Park Ranger.

Source of this information: General knowledge, job announcements, employers

2. What occupational title(s) used by the Employment Department's Occupational Information Center on the http://www.QualityInfo.org Web site most closely describes the above occupations? What is the occupational description in the Occupational Information Center? (This is the occupation and description for which the data below will describe)

Occupational Title	Description
Conservation Scientists	Manage, improve, and protect natural resources to maximize their use without damaging the environment. May conduct soil surveys and develop plans to eliminate soil erosion or to protect rangelands. May instruct farmers, agricultural production managers, or ranchers in best ways to use crop rotation, contour plowing, or terracing to conserve soil and water; in the number and kind of livestock and forage plants best suited to particular ranges; and in range and farm improvements, such as fencing and reservoirs for stock watering.
Natural Sciences Managers	Plan, direct, or coordinate activities in such fields as life sciences, physical sciences, mathematics, statistics, and research and development in these fields.
Environmental Scientists and Specialists	Conduct research or perform investigation for the purpose of identifying, abating, or eliminating sources of pollutants or hazards that affect either the environment or the health of the population. Using knowledge of various scientific disciplines, may collect, synthesize, study, report, and recommend action based on data derived from measurements or observations of air,

	food, soil, water, and other sources.
Zoologists and Wildlife Biologists	Study the origins, behavior, diseases, genetics, and life processes of animals and wildlife. May specialize in wildlife research and management. May collect and analyze biological data to determine the environmental effects of present and potential use of land and water habitats.
Foresters	Manage public and private forested lands for economic, recreational, and conservation purposes. May inventory the type, amount, and location of standing timber, appraise the timber's worth, negotiate the purchase, and draw up contracts for procurement. May determine how to conserve wildlife habitats, creek beds, water quality, and soil stability, and how best to comply with environmental regulations. May devise plans for planting and growing new trees, monitor trees for healthy growth, and determine optimal harvesting schedules.

Source of this information: Occupational Information Center on http://www.QualityInfo.org

3. What is the current number of jobs in the occupation(s)?

Region = **_Douglas Co / Lane Co_** (1-15, See the Regions section of http://www.QualityInfo.org for region descriptions)

	Most Recent Employment		
Occupational Title	**Region**	**Oregon**	**Nation***
Conservation Scientists	6 / 25	492	* Data for these occupations are not individually broken out in the national statistics.
Natural Sciences Managers	43 / 22	1,065	
Environmental Scientists	16 / 69	1,146	
Zoologists and Wildlife Biologists	41 / 36	1,308	
Foresters	58 / 117	819	

6. What is the 10-year growth rate for this occupation?

Occupational Title	Most Recently Published 10-Year Growth Rate Region	Oregon	Nation*
Conservation Scientists	+16.7% / +16.0%	+11.0%	
Natural Sciences Managers	0% / 11.6%	+10.2%	
Environmental Scientists	+12.5% / +10.1%	+16.8%	
Zoologists and Wildlife Biologists	+7.3% / + 11.1%	+15.2%	
Foresters	+13.8% / + 8.5%	+10.4%	

Source of this information: Regional and Oregon data on the Occupational Information Center is on http://www.QualityInfo.org; National data is at http://www.bls.gov/emp/emptab21.htm

7. What is the average annual (replacement and growth) job openings expected over the next 10 years in this occupation?

	Average Annual Openings		
Occupational Title	**Region**	**Oregon**	**Nation***
Conservation Scientists	0 / 1	19	
Natural Sciences Managers	0 / 1	33	
Natural Sciences Managers	0 / 3	53	
Zoologists and Wildlife Biologists	1 / 1	57	
Foresters	3 / 4	32	

Source of this information: Regional and Oregon data on the Occupational Information Center is on http://www.QualityInfo.org; National data is at http://www.bls.gov/emp/emptab21.htm;

8. Is a license required by the state of Oregon to perform this occupation?

Yes _____ If yes, how many licenses were held in the most recent year? _____
No __X____

Source of this information: http://www.QualityInfo.org Look up the occupation at http://www.qualityinfo.org/olmisj/OIC and then at License Information

9. What are the education, work experience, and on the job training typically needed for the related occupation(s)?
(On-the-job Training, Work Experience, Post-secondary, Apprenticeship, Certificate of Completion, Associate,)

Occupational Title	**Education, work experience or training typically needed**
Conservation Scientists	Bachelor's
Natural Sciences Managers	Bachelor's
Environmental Scientists	Bachelor's
Zoologists and Wildlife Biologists	Bachelor's
Foresters	Bachelor's

Source of this information: Occupational Information Center on http://www.QualityInfo.org

10. What are the <u>competitive</u> educational requirements for the related occupation(s)?
(Post-secondary training, Associate, or Bachelor's)

Occupational Title	Competitive Educational Requirement
Conservation Scientists	Master's
Natural Sciences Managers	Master's
Environmental Scientists	Master's
Zoologists and Wildlife Biologists	Master's
Foresters	Master's

Source of this information: Occupational Information Center on http://www.QualityInfo.org

11. Potential wages for this occupation

Occupational Title 1.Conservation Scientists 2.Natural Sci. Managers 3.Environmental Scientist 4.Zoologist/Wildlife Biol 5.Forester		**Entry (use 10th percentile if available)**	**Avg. (use median if available)**	**High (use 90th percentile if available)**
Region	1.	$24.63 / n/a	$29.88 / n/a	$36.30 / n/a
Douglas / Lane	2.	$34.44 / $32.24	$40.78 / $50.98	$52.02 / $73.61
	3.	n/a / $22.69	n/a / $32.05	n/a / $44.51
	4.	$21.79 / $25.16	$31.36 / $30.82	$37.98 / $36.30
	5.	n/a / $23.85	n/a / $31.38	n/a / $42.13
Oregon	1.	$19.38	$34.49	$50.76
	2.	$33.84	$50.55	$70.67
	3.	$22.90	$34.61	$46.06
	4.	$20.26	$32.07	$47.55
	5.	$22.86	$30.83	$40.62

Source of this information: Oregon and Regional Wage Information publications under the Publications section on http://www.QualityInfo.org

12. How many individuals completed the indicated CIP program in Oregon? (List each training facility and degree/certificate/award combination)

Program Year School/Training facility, Type of degree/cert./diploma/award received, # of completers

** Note that all of these Associate's degrees listed below are technician-level A.A.S. degrees and are not directly articulated with OSU's BS in Natural Resources as this program is designed to be. At present, there is only one other community college (Central Oregon CC -- not yet listed by OLMIS) that has a fully OSU-articulated Natural Resources A.S. degree.

School	City	**Programs of Training and 2012 Graduates		
Klamath Community College	Klamath Falls	Natural Resources/Conservation, General.	Associate Degree	0
Lane Community College	Eugene	Water, Wetlands, and Marine Resources Management.	Associate Degree	4
Mt Hood Community College	Gresham	Natural Resources/Conservation, General.	Associate Degree	7
		Natural Resources/Conservation, General.	Associate Degree	9
		Range Science and Management.	Associate DegreePostsec.	2
Treasure Valley Community College	Ontario	Wildlife, Fish and Wildlands Science and Management.	Associate Degree	2
		Range Science and Management.	Associate Degree	1
		Natural Resources/Conservation, General.	Associate Degree	9

Source of this information: Educational Information Center on http://www.QualityInfo.org

13. Answer the following questions concerning career ladders/career pathways:

a. What are the potential career ladder, or "lattice," steps or the career pathway for programs completers?
This program will create the middle "step" of the Umpqua Natural Resources Pathway, a UCC partnership with the Phoenix School (local high school), Oregon Youth Conservation Corps, Umpqua Watersheds, Inc., and the Umpqua National Forest on our youth-oriented "Learn, Earn, and Serve" program funded by the USFS and the National Fish and Wildlife Foundation. Students entering the program from area high schools will be able to take their 2-year A.S. from UCC directly into the marketplace, or seamlessly transfer into OSU's Bachelor of Science program in Natural Resources in their College of Forestry. Moreover, we have 3 field methods courses designed around current agency protocols for field sampling and analysis, an Environmental Dispute Resolution course, and several new lab science courses that may be of interest to agency personnel who just need some additional training to upgrade their skills. Most of the new courses will also be available as Science courses that can be used for the AAOT. We are also in conversation with the Engineering Dept. to use several of the Natural Resources classes in Forest Engineering and Forest Management A.S. programs currently being designed to articulate with OSU's B.S. programs in those majors.

b. What is the typical education needed for these jobs?
While Natural Resource jobs are available for graduates with Associate degrees, a Bachelor of Science degree greatly increases job opportunities and pay rates. Master of Science degrees will increase the success of graduates as they move up to higher level resource management positions. This program is designed to provide the early steps in this OSU-articulated pathway.

c. Is training available for related career ladder/pathway occupation(s) and at what types of institutions?
Students who complete the Natural Resources A.S. program will also possess the background to pursue Bachelor's degrees as Natural Science Managers, Foresters, Soil and Plant Scientists, Wildlife and Fisheries Biologists, Hydrologists, Environmental Scientists and other related professions. As mentioned, we will be working with UCC's Engineering Dept. to develop two new OSU-articulated programs that will use several of our core courses for their curricula as well. After the roll-out of this program, we will also work toward developing similar degrees that will articulate with Fish and Wildlife B.S. degrees in OSU's College of Agriculture.

Source of this information: Occupational Information Center "related occupations" on http://www.QualityInfo.org, Occupational Projections Handbook at http://www.bls.gov/oco/home.htm, general knowledge

14. Please describe any other labor market information that may be relevant to this program
Turnover because of retirements is expected to be especially high in Natural Resource professions in the coming years as "Baby Boomer" professionals continue to "age out" of the workforce. We also believe that because of our close relationship with specialists in the Forest Service, BLM, ODF&W, the local watershed council and other public land management agencies with whom we will be working closely in the field, that our students will have a "leg up" when it comes to hiring replacements for retiring professionals.

Pending legislation and current trends will require more thorough monitoring and analysis of both site-level and landscape-level data to plan and monitor the ecological practices that will increasingly be used to manage natural resources. Demand for broadly trained ecosystem scientist/managers will therefore increase in the public land management agencies to guide management activities, and also in private industry to meet state and federal standards.

Enrollments in OSU's Natural Resources Department have grown every year since its inception, so UCC students will progress to a robust and vibrant program. Positive labor market trends have been noted above, and according to a recent report in The Oregonian (1/14/2015), OSU has just kicked off a $30 million fundraising effort as part of a planned $60 million expansion of its College of Forestry. It wants to double enrollment to 2,000 students due to projected increases in the demand for more trained Natural Resource professionals.

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New course outlines are attached below.

Course No:	NR 201
Course Credit:	3
Lecture Hrs/wk:	3
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	33/term
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	3 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Introduction to Natural Resources**
Developed By**:** Bryan Benz and Ken Carloni
Development Date: Nov. 2014
Revision Date:
Review Date:

COURSE DESCRIPTION:

Introductory course for Natural Resources majors. Overview of the underlying principles and complexities involved in managing natural resources of the Pacific Northwest. Investigation of major natural resource issues of the region. Development of critical thinking and collaboration skills useful in seeking solutions.

COURSE OUTCOMES
Upon completion of the course, you will be able to:

- Identify and describe key characteristics and processes that characterize renewable natural resources, with an emphasis on Oregon, Washington and Northern California.
- Recognize and describe key knowledge, skills, and attitudes you will need to become a successful natural resource manager or specialist.
- Identify and discuss several major natural resource issues that you are likely to face in your career.
- Identify and discuss basic principles and applied techniques that will help you address important issues throughout your career.
- Locate and understand written and multi-media material public and private sources, and critically assess factual and value statements related to natural resources.
- Demonstrate critical thinking and effective collaboration skills while communicating in verbal, written and multi-media modes.
- Effectively communicate to diverse audiences how sustainable management practices can be used to resolve resource management conflicts.

COURSE OUTLINE

- Introduction to natural resources and the concept of sustainability
- History of resource exploitation; natural resources as a "commons"; public attitudes
- Ecological foundations and habitat principles
- Water and soil resources and management
- Forest resources and management
- Rangeland resources and management
- Endangered species and resource extraction
- Natural resource economics
- Sustainable development and urban ecology

Course No:	NR 205
Course Credit:	4
Lecture Hrs/wk:	3
Lab Hrs/Wk:	3
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	66
Length of Course:	11 wks
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	5.1
Activity Code:	100
CIPS:	260101

Course Title: **Soil Science**
Developed By**:** Karen R. Carroll, M.S.
Development Date: 11/6/14
Revision Date:
Review Date:

COURSE DESCRIPTION:
This course will provide information and experience in soil development, physical properties of soil, soil organisms, naming of soils, and how land management practices affect soil quality and sustainability.

COURSE OUTCOMES:

Upon completion of NR 205, students will be able to:

- Describe the scientific method
- Determine soil texture
- Determine soil color, structure, and other physical properties
- Explain the factors controlling soil development and describe how each of these factors has contributed to a soil that exists today
- Explain the chemical processes that control the release of nutrients from the soil matrix, including the role of soil pH
- Explain controls on water availability and water movement in a soil profile
- Explain the roles of macrofauna, microfauna, and microflora in processing soil organic matter
- Evaluate how management practices of land affect soil quality and sustainability
- Explain where and how to find information about soils using the NRCS Web-Based Soil Survey
- Perform calculations involving soil physical properties, water content, and soil nutrient availability

REQUIRED TEXT/MATERIALS:

Elements of the Nature and Properties of Soils, 3rd Edition, by Brady and Weil; Prentice Hall, 2010

COURSE OUTLINE:

Week:

1. Scientific Method; Soils Around Us
2. Formation of Soils; Soil Classification
3. Physical Properties of Soil; Characteristics and Behaviors
4. Soil Water, Air, and Temperature
5. Soil Colloids
6. Acidity, Alkalinity, and Salinity
7. Soil Organisms and Organic Matter
8. Nutrient Cycles and Fertility
9. Soil Erosion and Pollution
10. Soil Management Practices
11. Final Examination

Course No:	NR 221
Course Credit:	4
Lecture Hrs/wk:	3
Lab Hrs/Wk:	3
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	66
Length of Course	11 wks.
Banner enforced Prerequisite:	MTH 111
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	5.1 ILCs
Activity Code:	100
CIPS:	400801

Course Title: **Water Resource Science**
Developed By**:** Mick Davis, Ph.D.
Development Date: Nov. 2014
Revision Date:
Review Date:

COURSE DESCRIPTION:
This course will cover the basic physics principles which determine the hydrological properties of natural water resources; the role these properties play in shaping the local ecology; and methods used to measure, monitor, and model these properties for the purposes of water resource management and restoration.

COURSE OUTCOMES:
Upon successful completion of this course the successful student will have demonstrated the ability to

1) Describe, analyze, and apply the following concepts in order to solve problems, make predictions, acquire data, and analyze data.
    a. Graphs, diagrams, and equations for 1-D motion involving constant acceleration of particles and fluids.
    b. Forces and their effect on the motion of solid objects and fluids. Gravitation, normal, fluid drag, and friction forces.
    c. Momentum, conservation of momentum, the impulse momentum theorem and its application to fluid flow.
    d. Kinetic and potential energy, work, and conservation of energy in conservative and non-conservative systems, including flowing fluids.
    e. Hydrostatic properties of non-compressible fluids.
    f. Bernoulli's principle, viscosity, Reynold's number, turbulence
    g. Temperature, thermal energy, heat transfer mechanisms, Newton's Law of cooling and application of these to analysis of water resource temperature.

h. The wave property of light, absorption coefficients, photon energies and the role these play in radiative thermal energy transfer to water.

2) Know, define, discuss, and use in problem solving the SI units, metric prefixes and physical constants related to concepts 1.a-1.h listed above.

3) Know, describe, and show proficiency in current standard methods for measurement and monitoring of the following water resource properties:
   a. GPS location measurement and reporting in UTM and Lat/Long coordinate systems.
   b. Stream width and depth profiles
   c. Average and surface stream flow velocity and flow velocity profiles
   d. Conductivity
   e. Turbidity
   f. Surface wind speed
   g. Surface incident light intensity
   h. Average stream temperature and stream temperature profiles.

4) Think critically, problem solve, and make predictions based on physical concepts in 1.a-1.h.

5) Clearly communicate predictions, data acquisition methods, and results of data analysis through written problem solutions, written answers in laboratory/field guides, formal laboratory/field reports, project reports, oral presentations, and classroom discussions.

6) Make use of laboratory and field equipment to properly and safely collect experimental data.

7) Make use of calculators and spreadsheet software in numeric problem solving and data analysis

8) Make use of basic algebra (100-level) in problems solving, experimental design, and data analysis.

9) Make practical use of the scientific method in the laboratory and in the field.

10) Work effectively in a small group in the laboratory and in the field.

11) Apply the scientific method and outcomes 1-10, for the purpose of experimental design and execution.

COURSE OUTLINE

Week 1: Kinematics + Measurement and Uncertainty

I) Position and Position Measurement
   i. Euclidean Coordinate Systems
   ii. UTM Coordinate System
   iii. Lat/Long Coordinate System
   iv. Position as a vector
   v. Resolving position vector components
      1. DEMO: Multilateration

II) Velocity and Velocity Measurement
   i. Speed
   ii. Velocity
   iii. Resolving velocity vector components
   iv. Langrangian vs. Eulerian reference frames

III) Acceleration and Acceleration Measurement
   i. Acceleration as rate of change of velocity
   ii. Acceleration as a vector
   iii. 4 cases for the sign of the acceleration

IV) Lab 1: Position and Velocity Measurements (FIELD LAB)
   i. Measuring position with GPS
   ii. Determining uncertainty in position measurement
   iii. Calculating velocity from GPS position and time measurements
   iv. Estimating uncertainty in velocity calculation
   v. Calculating acceleration from position and time measurements
   vi. Formal Field Action Report

Week 2: Newton's Laws of Motion

I) Newton's 1st and 3rd Laws
   i. Inertia
   ii. Mass
   iii. Density
   iv. Fluid Density
   v. Force Pairs
      1. DEMOS: Hanging Mass + Accelerometer
      2. DEMO: Dueling Force Sensors

II) Newton's 2nd Law
   i. F=ma for single forces
   ii. Balanced and unbalanced forces
   iii. Vector addition of Forces
   iv. Newton's 2nd Law

III) The gravitational force
   i. Free fall acceleration due to gravity
   ii. Calculating the gravitational force
   iii. Mass vs. Weight
   iv. Calculating the Weight per Volume
      1. DEMO: Paper vs. book fall-time

IV) Lab 2: Determining Flow Velocity and Flow Volume (FIELD LAB)
   i. Measuring stream width and depth
   ii. Measuring stream depth profile
   iii. Determining uncertainty in width and depth measurements
   iv. Measuring average surface velocity
   v. Measuring a flow velocity profile
   vi. Flow velocity via salt or dye slugs
   vii. Estimating uncertainty in velocity calculation
   viii. Formal Field Action Report

Week 3: Hydrostatics

I) Forces and Motion Tutorial

II) Buoyant Force and Archimedes Principle
   i. Conceptual derivation
   ii. Relation to density
   iii. Specific gravity definition and calculation

III) Pascal's Principle
   i. Pressure
   ii. Pressure in Confined, Incompressible Fluids
   iii. Hydraulic Machines

IV) Lab 3: Archimedes' Principle
   i. Determining material density 2-ways
   ii. Determining material specific gravity 2-ways
   iii. Understanding average density
   iv. Calculating the buoyant force on floating log

v. Calculating the buyout force on an anchored log
vi. Calculating the buoyant force on a boulder

Week 4: Energy Conservation

I) Normal Force and Friction Force
   i. Static Friction
   ii. Kinetic Friction
   iii. On inclined geometries
   iv. Resolving force vector components
   v. Frictional force for constant velocity flow

II) Energy
   i. Kinetic Energy
   ii. Gravitational Potential Energy
   iii. Conservation of Mechanical Energy
   iv. Flow acceleration and velocity in the absence of friction

III) Work
   i. Work by Conservative forces
   ii. Work-Energy Theorem
   iii. Calculation of ping-pong ball speed
   iv. Work by Non-conservative forces
   v. Conservation of Total Energy
   vi. Work due to friction
   vii. Mechanical-Thermal Energy conversion by friction
      1. DEMO: Ping Pong Ball Cannon

IV) Lab 4: Energy Dissipation in fluid flow
   i. Tracer particles as a flow velocity measurement tool
   ii. Video recording as a position + velocity measurement tool
   iii. Verifying Manning's Formula
   iv. Quantifying energy dissipation in fluid flow

Week 5: Hydrodynamics I

I) Bernoulli's Principle
   i. As conservation of mechanical energy in disguise
   ii. Applications to carburetors, wings, sails, atomizers
   iii. Calculation of lift force on an anchored log
   iv. Calculation of lift force on a boulder
      1. DEMO: Hair Dryer + Ping-Pong ball

II) Impulse-Momentum
   a. Momentum
   b. Momentum conservation
   c. Impulse-Momentum Theorem
   d. Impulse-Momentum Theorem for analysis of erosion and erosion control

III) Drag Force
   i. In air
   ii. In Viscous fluids
   iii. Reynolds number dependence
      1. DEMO: V^2 dependence for coffee filters

IV) Lab 5: Drag force
   i. Modeling drag force in air
   ii. Measuring drag force in air
   iii. Measuring drag force in water
   iv. Determining velocity dependence of drag force in water
   v. Calculating Drag force on a log
   vi. Calculating Drag force on a boulder

Week 6: Hydrodynamics II

I) Viscosity and Reynold's Number
   i. As a general fluid property
   ii. Measuring viscosity
   iii. Viscous Flow
   iv. Reynold's Number
   v. Life at low Reynold's Number
   vi. Life at Medium Reynolds Number
   vii. Life at Large Reynolds Number
   viii. Turbulence

II) Guest Lecturer: Ken, Umpqua Watersheds and UCC biology professor
   i. Effects of flow velocity, woody habitat, temperature, turbidity, turbulence on stream ecology.

III) Guest Lecturer: Sydney, BLM Hydrologist and former UCC physics 201 student
   i. Woody debris habitat restoration case studies

IV) Lab 6: Small Scale simulation stream flow via Reynold's number matching
   i. Formal Laboratory Report

Week 7: Light and Energy

I) Hydrostatics/Hydrodynamics Tutorial

II) Properties of Light
   i. Wave-Particle duality
   ii. Electromagnetic spectrum
   iii. Energy in photons
   iv. Beer's Law
   v. Scattering and absorption coefficients
   vi. Direct and scattered light energy absorption by water
   vii. Effects of vegetation on incident light energy
      1. DEMO: Beers Law in chalky water

III) Turbidity
   i. Turbidity measurement
   ii. Effects of turbidity on absorption and scattering of light by water
   iii. Direct ecological effects of turbidity changes

IV) Lab 7: Beer's Law for vegetation and turbidity (FIELD LAB)
   i. Measuring incident light intensity
   ii. Determining absorption/scattering coefficients of vegetative covering
   iii. Measuring average stream turbidity and turbidity profiles
   iv. Formal Field Action Report

Week 8: Thermodynamics

I) Light Tutorial

II) Thermal Energy, Temperature
   i. Definitions
   ii. Measurement
   iii. Long term monitoring methods

III) Heat
   i. Heat as transfer of thermal energy driven by ΔT
   ii. Conduction
   iii. Radiation
   iv. Convection
   v. Calculating final temperature of fluid mixtures (calorimetry)

vi. Calculating final stream temperature after mixing with hyporheic flow

IV) Lab 8: Thermodynamics
- i. Predicting the final temperature of fluid mixtures
- ii. Measuring the effects of particle concentration on radiative heating rate
- iii. Measuring the effects of stream bed color/material on radiative heating rate

Week 9: Convection

I) Phase Changes
- i. Sublimation-Deposition
- ii. Melting-Freezing
- iii. Evaporation-Condensation
- iv. Latent heats
  1. DEMO: Can crushing

II) Ideal Gas Law
- i. Microscopic Picture
- ii. Non-ideal behavior
- iii. Vapor Pressure
- iv. Saturation Vapor Pressure
- v. Relative Humidity/Dewpoint

III) Convection
- i. Conduction-Convection
- ii. Evaporation-Convection
- iii. Bowen Ratio and limitations
- iv. Forced Convection

IV) Lab 9: Newton's Law of Cooling
- i. Newton's Law of cooling
- ii. Verifying applicability of Newton's Law of Cooling to hot/cold liquid
- iii. The effects of Natural vs. Forced Convection on exponential heating and cooling rates.
- iv. Begin work on final projects
  1. Woody debris habitat restoration modeling and small scale simulation.

     OR
  2. Measuring and modeling the relative effects of vegetation cover on the diurnal heating and cooling rates of water.

Week 10: Stream Temperature Dynamics

I) Heat Budget Models
   i. Advantages
   ii. Limitations
   iii. Applications
   iv. Work on final projects

II) Guest Lecturer: Timber Industry Representative??
   i. Finding a balance between industry and conservation
   ii. Continue final projects

III) Guest Lecturer: Jeremy Groom, Statistician, Oregon Department of Forestry??
   i. Types of natural resource data and metrics
   ii. Common data analysis methods
   iii. Continue final projects

IV) Lab 10: Riparian climate/stream flow study site visitation with Maryanne Reiter, Weyerhaeuser (FIELD LAB)
   i. Wind speed
   ii. Light intensity
   iii. Temperature
   iv. Humidity
   v. Flow volume

Week 11: Final Project Oral Reports

1. Woody debris habitat restoration modeling and small scale simulation.

OR

2. Measuring and modeling the relative effects of vegetation cover on the diurnal heating and cooling rates of water.

Course No:	NR 240
Course Credit:	3
Lecture Hrs/wk:	
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	33
Length of Course	11 wks.
Banner enforced Prerequisite:	Course in BI or NR
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	3 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Forest Ecosystems**
Developed By**:** Ken Carloni, Ph.D.
Development Date: Nov. 2014
Revision Date:
Review Date:

COURSE DESCRIPTION:

Principles of ecosystem dynamics in forested communities, landscapes and bioregions. Coevolution of competition, predation and mutualism. Energy flow, nutrient cycles and feedback controls. The effects of disturbance and succession on biodiversity and habitat stability through time.

COURSE OUTCOMES:

Students who complete this course will be able to:

- Describe the components and processes of forest ecosystems at multiple scales.
- Explain the flow of energy and the cycling of nutrients in ecosystems, and discuss the factors that influence these processes.
- Explain the influence of climate, soils, topography, and disturbance agents on ecosystem structure and function.
- Explain the relationships between the processes of disturbance and forest succession, and discuss their effects on ecosystem structure and function including stand demographics, soils, water resources, wildlife habitat, carbon storage and biodiversity.
- Discriminate among those management practices that accumulate carbon, store water, produce sustainable products, and increase biodiversity from those that don't.
- Recognize effective solutions to ecological problems and communicate them clearly.

COURSE OUTLINE:

- Fundamental Ecosystem Concepts
- Structure and Function of Forest Ecosystems at Multiple Scales
- Climate, Soils, Topography and Ecoregions
- Coevolution of Populations and Communities
- Disturbance and Succession in Forest Ecosystems
- Energy, Productivity and Biomass
- Biogeochemical Cycles
- Landscape Ecology: Fragmentation, Connectivity, and Landscape Heterogeneity
- Ecosystem Services

Course No:	NR 241
Course Credit:	4
Lecture Hrs/wk:	3
Lab Hrs/Wk:	3
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	66
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	5.1 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Field Dendrology**
Developed By**:** Ken Carloni, Ph.D. and Bryan Benz, M.S.
Development Date: Nov. 2014
Revision Date:
Review Date:

COURSE DESCRIPTION:

Identification of the principal forest trees of North America, emphasizing trees and shrubs of the Pacific Northwest. Other topics include the ranges over which these species grow, their structure and function, important ecological characteristics, and principal uses. We will also survey forested biomes of the world. Field trips required on and off campus.

COURSE OUTCOMES:

Students who successfully complete this course will be able to:

- Identify economically and culturally important native tree and shrub species found in Washington, Oregon and Northern California.
- Describe the habitats, ranges, and principle uses of these species.
- Explain the general anatomy and physiology of woody plant species.
- Identify key vegetation indicators of habitat types in Southwestern Oregon
- Describe the forested biomes of the world.

COURSE OUTLINE:

- Woody plant families and important genera
- Using dichotomous keys
- Structure and function of woody plants
- Ecological functions of woody plant species in their habitats
- Role of woody plant in forest succession
- Documenting trees and shrubs in the field
- Forested biomes of the world with emphasis on Northwestern bioregions

Course No:	NR 242
Course Credit:	4
Lecture Hrs/wk:	3
Lab Hrs/Wk:	3
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	66
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	5.1 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Ecosystems of Southwest Oregon and Northern California**
Developed By**:** Ken Carloni
Revision Date:
Review Date:

COURSE DESCRIPTION:

This is a hybrid course taught partly online and partly during a 6 day bus tour of Southwestern Oregon and Northern California. Resources for learning the distributions, unique species compositions, population interactions, nutrient and energy cycles, disturbance processes, and ecological histories of the landscapes of this region will be presented online. The bus tour begins immediately after the spring term ends, and will emphasize applications of this information during stops in the Siskiyou Mountains, Smith River, Redwood National Park, Trinidad State Beach, the Trinity River, Lassen Volcanic National Park, McArthur-Burney Falls State Park, Lava Beds National Monument, Crater Lake National Park, the North Umpqua River, and other sites of ecological interest. Students should be reasonably fit and prepared to hike several miles over the course of the tour on easy to moderately difficult trails.

COURSE OUTCOMES:

Students who successfully complete this course will be able to:

- Map the major ecoregions of SW Oregon and N California.
- Describe how climate, soils, and physiography influence the structure and function of ecological communities.
- Describe the region's significant disturbance agents, explain the process of ecological succession, and recognize species commonly associated with pioneer and climax communities.
- Recognize forest, shrub, grassland and other community types of SW Oregon and N California based on their geographic location and species composition.
- Identify the dominant plant species found in each ecosystem we visit.
- Recognize the interrelationships between pattern and process in the ecosystems we visit.

COURSE OUTLINE:

- Use of dichotomous keys, reference resources
- Physical environment of the region
- Ecosystem pattern and process at multiple scales
- Disturbance processes, ecological succession, and Historic Range of Variability
- Dominant plant species of the region's ecosystems
- Types and distributions of:
    - Conifer forests
    - Hardwood forests
    - Shrub and steppe communities
    - Grasslands and savannas
    - Wetland and riparian habitats
    - Coastal communities
- Field tour journal
- Final project

Course No:	NR 243
Course Credit:	3
Lecture Hrs/wk:	3
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	33/term
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	WR 121
Co-Requisite:	WR 121
Load Factor:	3 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Historical Ecology of Pacific Northwest Landscapes**
Developed By**:** Ken Carloni
Development Date: Feb. 2015
Revision Date:
Review Date:

COURSE DESCRIPTION:

Students will learn about changes in the landscapes of the Pacific Northwest from the end of the last ice age to the present with an emphasis on Southwestern Oregon and Northern California. We will examine the changing uses of the environment by a succession of cultures, and their effects on landscape structure and function by using a range of tools to analyze archaeological, historical end ecological data to reconstruct historic landscapes.

COURSE OUTCOMES

Upon completion of the course, you will be able to:

- Trace the major events in the ecological and cultural history of the Pacific Northwest from the late Pleistocene to the present.
- Describe the methods and data used to reconstruct historic landscape conditions.
- Use historical, archaeological and ecological data to research and reconstruct historic landscape conditions.
- Apply the concept of Historic Range of Variability to landscapes through time.
- Analyze the impacts of the succession of cultures on landscape structure and function in SW Oregon and N California.

COURSE OUTLINE

- Introduction to the Theory and Practice of Historical Ecology
- Historic Range of Variability
- Life After the Ice Age and the Peopling of the Americas
- Cultural Evidence I: Archaeology and Ethnobiology
- Cultural Evidence II: Historic Documents, Images and Data.
- Ecological Evidence I: Dendrochronology and Vegetation Structure
- Ecological Evidence I: Pollen, Phytoliths and Geomorphology
- The Little River Watershed: Indians, Fire and the Land
- Natural Resource Conservation: Fatesheds and Management Options

Course No:	NR 251
Course Credit:	3
Lecture Hrs/wk:	3
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	33/term
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	**Recommended: A previous course in Biology or Natural Resources**
Co-Requisite:	
Load Factor:	3 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Principles of Fish and Wildlife Conservation**
Developed By**:** Ken Carloni
Development Date: Feb. 2015
Revision Date:
Review Date:

COURSE DESCRIPTION:

History of conservation and natural resource use; ecological principles, and social and economic limitations of conservation; principles and practices of wildlife and fisheries management; role of research in management.

COURSE OUTCOMES

Upon completion of the course, you will be able to:

- Describe the basic scientific principles underlying the management and conservation of fish and wildlife.
- Outline the legal, social, cultural, and political institutions that affect wildlife conservation and management.
- Explain how scientific knowledge and research are used in the conservation and management of our natural resources.
- Develop and apply a vocabulary related to wildlife and fish ecology.

COURSE OUTLINE

I. Social and political aspects of wildlife conservation and management

- History of fisheries and wildlife conservation in US
- Human Attitudes – Values & Philosophy
- Economics of Wildlife and Fish Conservation
- Overabundant Wildlife

II. Scientific principles of wildlife management

- Ecological Principles
- Evolutionary Biology
- Population Dynamics
- Endangered Species
- Conservation Biology
- Exotic Species
- Disease Ecology

III. Scientific principles of ecosystem management

- Principles of Fish and Wildlife Harvest Management
- Ecosystem Management
- Landscape Ecology
- Marine Systems
- Agricultural Ecosystems

Course No:	**NR 255A/B/C**
Course Credit:	2
Lecture Hrs/wk:	1
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	3
Practicum Hrs/Wk:	
Clock Hours:	44
Length of Course	11 wks.
Banner enforced Prerequisite:	NR 251, PE 255
Instructor enforced Prerequisite:	
Co-Requisite:	NR 251, PE 255
Load Factor:	3.1 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Landscape Monitoring**
Developed By**:** Ken Carloni
Development Date: Feb. 2015
Revision Date:
Review Date:

COURSE DESCRIPTION:

The NR 255 series of courses emphasize sampling design and methods for quantifying physical, aquatic, and terrestrial resources in the Pacific Northwest with geographic emphasis on southwestern Oregon and northern California. Students will learn and apply standard field and laboratory protocols used by the US Forest Service, the Bureau of Land Management, the Oregon Dept. of Fish and Wildlife, the Oregon Department of Environmental Quality, and other state and national land and resource management agencies. **NR 255A** is offered Fall term, and will focus on resources typically monitored from late September to early December. **NR 255B** focuses on resources typically monitored during the Winter term from early January through late March, and **NR 255C** is offered Spring term with emphasis on monitoring protocols typically conducted from early April through early June.

COURSE OUTCOMES:

Upon successful completion of NR 255A, NR 255B, or NR 255C students will be able to:

- Describe how monitoring programs are used to address research questions and management issues in population, habitat and ecosystem management; restoration ecology; and sustainable resource management.
- Explain concepts of systematic field sampling and data collection.

- Use common monitoring tools and techniques, and know the circumstances under which they are most effectively applied.
- Collect data in a systematic manner employing a variety of standard sampling protocols used by local and regional agency professionals.
- Demonstrate proficiency in basic data handling, interpretation, display, and communication technologies using a variety of presentation media.

COURSE OUTLINE

- Introduction to landscape monitoring.
- Monitoring program design and implementation.
- Endangered, threatened and other categories of species of concern in the PNW.
- Data analysis and presentation
- Use of equipment and protocols for measuring ecological parameters that may include (but are not limited to):
    - Water quality including pH, temperature, dissolved oxygen, conductivity, turbidity, and flow rate.
    - Stream function including macroinvertebrate diversity, spawning substrate and vertebrate species surveys.
    - Snag and down wood inventories.
    - Small mammal/prey-base monitoring.
    - Vegetation surveys.
    - Aquatic and terrestrial mollusk surveys.
    - Snorkeling for salmonids, amphibians and other aquatic species
    - Owl, murrelet, and neotropical bird surveys
    - Tree climbing for red tree vole, lichens, and other Survey and Manage species under the Northwest Forest Plan.
    - Trail cameras and radio telemetry.
    - Invasive species presence/absence.

Course No:	NR 295
Course Credit:	3
Lecture Hrs/wk:	3
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	33
Length of Course	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	3 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Environmental Dispute Resolution**
Developed By**:** Jim Caplan
Development Date: Nov. 2014
Revision Date:
Review Date:

COURSE DESCRIPTION:

This course examines natural resource-based conflicts on public and private lands, and presents strategies to resolve them. Analysis of root causes of environmental gridlock, including important values people hold towards the environment and development, and the tendency of groups and individuals to rely on traditional and well-understood methods for dispute resolution such as the courts and electoral and legislative processes. Course will focus on why disputants and the interested public find themselves increasingly frustrated by gridlock and dismayed at gridlock's effects on both environmental quality and local and regional economies, and how these frustrations are leading to the use of alternative resolution methods.

COURSE OUTCOMES:

At the completion of this course, you will be able to:

- Understand the origins of the environmental movement in America and how resource development has evolved along with it
- Identify and understand common values people hold towards natural resources and their protection or development; and also understand how people fit into various values-sharing, stakeholder communities
- Understand common human responses to conflict and common approaches to dealing with them; and also see environment conflicts through the eyes of disputants, land managers, and caring onlookers
- Appreciate the value of traditional dispute-resolution strategies and methods while developing understanding of the benefits (and costs) of alternative means

- Understand how to design simple, effective strategies and carry out basic environmental dispute resolution actions

COURSE OUTLINE:

Week One: Introduce course, get to know everyone a little, review syllabus and instructional materials, develop understanding of definitions and interpretations, review and discuss the Reed et al environmental values, and make initial selection of research project

Exercise: "poker hand" win-lose versus win-win

Week Two: Review history of the environmentalism and the co-evolution of development in America, relate this history to the values we hear and experience today, and review and discuss our personal Meyers-Briggs and Thomas-Kilmann information

Exercises: "walking caucus" on fear/conflict responses—fight, flight, hunker down, deceive, placate—followed by "blaming" role play and group feedback

Week Three: First hour, discuss environmental conflict with an experienced panel (advocacy interest, legal, political, and agency representatives); second hour, discuss observations from panel discussion in terms of understandings reached in weeks one and two as well as strategy and tactics insights gleaned from the panel representatives

Week Four: Evaluate and discuss various ways of identifying disputants and stakeholders; apply understanding from weeks one through three to developing ideas about who to approach for dispute resolution, some possible ways to go about it, and what resources might exist and be needed to make things happen

Week Five: First hour, midterm test; second hour, discuss third-party dispute resolution approaches with an experienced panel (facilitator, mediator, negotiator)

Week Six: Review and discuss conventional dispute resolution strategies--strengths and weaknesses; initial exploration of alternative strategies

Exercise: "toxic waste" scenario

Week Seven: Further development of alternative strategies; introduction to basic techniques and methods with an emphasis on evaluating their strengths and weaknesses such as overall difficulty, time and dollar costs, and consistency with community values, among other factors

Week Eight: First hour, discuss community-based strategies with an experienced panel (established collaboratives); second hour, delve deeper into techniques such as mediation, facilitation, collaboration, and interest-based bargaining

Week Nine: First group of research project presentations

Week Ten: Second group of research project presentations; course review

Week Eleven: Final test

Labor Market Supply and Demand Factors for Community College Program Evaluation

(LMI Worksheet)

~~**Department forms change periodically and it is the college's responsibility to use the most current forms available. Forms, handouts and useful resources are located at**~~
~~**http://www.odccwd.state.or.us/prgapproval/**~~

~~**This document is a guide and worksheet for the college to investigate and evaluate the labor market supply and demand factors related to a proposed professional technical program. It also provides required documentation relevant to the State Board of Education approval standard for "Need." This form is for planning purposes as college prepare to submit a Notice of Intent for a proposed Associate of Applied Science degree or certificate of completion program through the Oregon Community College Program Submission System (Webforms). It may be necessary to update or correct some information and you may be asked for additional information. If so, a revised LMI Worksheet will be required when submitting the New Program Application (NPA) in Webforms.**~~

College	Umpqua Community College		
Contact Person	Ken Carloni, Science Dept. Chair		
E-Mail	Ken.carloni@umpqua.edu	**Phone**	(541) 440-7641

Name of proposed program		Natural Resources: Landscape Monitoring Option	
Credential(s) or form(s) of recognition proposed		Associate of Science	
CIP code	260101	**CIP title**	Biology

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Information is available to complete much of this form at the Employment Department's Web site ~~http://www.QualityInfo.org~~http://www.QualityInfo.org in the *Occupational Information Center* and the *Educational Information Center*. If necessary, the college may contact the Employment Department's Occupational Economist at (503) 947-1233 with questions about this information. Not all information needed to establish and document need is necessarily found through Oregon Employment Department resources. Please refer to the section, "Labor

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Market Supply and Demand Factors Explanation" later in this document for additional information concerning each question. It is the college's responsibility to utilize any sources of information available to adequately provide evidence of need.

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1. What are the common job titles for the occupations that use the skills your program will teach?

Biologist, Fisheries Biologist, Wildlife Biologist, Botanist, Restoration Forester, Conservation Scientist, Natural Resources Manager, Environmental Scientist, Hydrologist, Park Ranger.

Source of this information: General knowledge, job announcements, employers

2. What occupational title(s) used by the Employment Department's Occupational Information Center on the ~~http://www.QualityInfo.org~~http://www.QualityInfo.org Web site most closely describes the above occupations? What is the occupational description in the Occupational Information Center? (This is the occupation and description for which the data below will describe)

Occupational Title	Description
Conservation Scientists	Manage, improve, and protect natural resources to maximize their use without damaging the environment. May conduct soil surveys and develop plans to eliminate soil erosion or to protect rangelands. May instruct farmers, agricultural production managers, or ranchers in best ways to use crop rotation, contour plowing, or terracing to conserve soil and water; in the number and kind of livestock and forage plants best suited to particular ranges; and in range and farm improvements, such as fencing and reservoirs for stock watering.
Natural Sciences Managers	Plan, direct, or coordinate activities in such fields as life sciences, physical sciences, mathematics, statistics, and research and development in these fields.
Environmental Scientists and Specialists	Conduct research or perform investigation for the purpose of identifying, abating, or eliminating sources of pollutants or

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	hazards that affect either the environment or the health of the population. Using knowledge of various scientific disciplines, may collect, synthesize, study, report, and recommend action based on data derived from measurements or observations of air, food, soil, water, and other sources.
Zoologists and Wildlife Biologists	Study the origins, behavior, diseases, genetics, and life processes of animals and wildlife. May specialize in wildlife research and management. May collect and analyze biological data to determine the environmental effects of present and potential use of land and water habitats.
Foresters~~(see Proposal for data on related titles)~~	Manage public and private forested lands for economic, recreational, and conservation purposes. May inventory the type, amount, and location of standing timber, appraise the timber's worth, negotiate the purchase, and draw up contracts for procurement. May determine how to conserve wildlife habitats, creek beds, water quality, and soil stability, and how best to comply with environmental regulations. May devise plans for planting and growing new trees, monitor trees for healthy growth, and determine optimal harvesting schedules.

Source of this information: Occupational Information Center on ~~http://www.QualityInfo.org~~http://www.QualityInfo.org

3. What is the current number of jobs in the occupation(s)?

Region ~~#~~= **Douglas Co / Lane~~—~~ Co** (1-15, See the Regions section of ~~http://www.QualityInfo.org~~http://www.QualityInfo.org for region descriptions)

Occupational Title	Most Recent Employment Region	Oregon	Nation*
Conservation Scientists	6 / 25	492	* Data for these occupations are not individually broken out in the national statistics. n/a ~~This category is not broken out~~
Natural Sciences Managers	43 / 22	1,065	
Environmental Scientists	16 / 69	1,146	
Zoologists and Wildlife Biologists	41 / 36	1,308	
Foresters	58 / 117	819	

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* These categories are not broken out

6. What is the 10-year growth rate for this occupation?

Occupational Title	Most Recently Published 10-Year Growth Rate Region	Oregon	Nation*
Conservation Scientists	+16.7% / +16.0%	+11.0%	
Natural Sciences Managers	0% / 11.6%	+10.2%	
Environmental Scientists	+12.5% / +10.1%	+16.8%	
Zoologists and Wildlife Biologists	+7.3% / + 11.1%	+15.2%	
Foresters	+13.8% / + 8.5%	+10.4%	

Source of this information: Regional and Oregon data on the Occupational Information Center is on ~~http://www.QualityInfo.org~~http://www.QualityInfo.org; National data is at ~~http://www.bls.gov/emp/emptab21.htm~~http://www.bls.gov/emp/emptab21.htm

7. What is the average annual (replacement and growth) job openings expected over the next 10 years in this occupation?
*

Occupational Title	Average Annual Openings Region	Oregon	Nation
Conservation Scientists	0 / 41	19	
Natural Sciences Managers	0 / 1	33	
Natural Sciences Managers	0 / 3	53	
Zoologists and Wildlife Biologists	1 / 1	57	
Foresters	3 / 4	32	

Source of this information: Regional and Oregon data on the Occupational Information Center is on ~~http://www.QualityInfo.org~~http://www.QualityInfo.org; National data is at ~~http://www.bls.gov/emp/emptab21.htm~~http://www.bls.gov/emp/emptab21.htm;

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8. Is a license required by the state of Oregon to perform this occupation?

Yes _____ If yes, how many licenses were held in the most recent year? _____
No __X____

Source of this information: ~~http://www.QualityInfo.org~~http://www.QualityInfo.org Look up the occupation at ~~http://www.qualityinfo.org/olmisj/OIC~~http://www.qualityinfo.org/olmisj/OIC and then at License Information

9. What are the education, work experience, and on the job training typically needed ~~-~~for the related occupation(s)?
(On-the-job Training, Work Experience, Post-secondary, Apprenticeship, Certificate of Completion, Associate, ~~Bachelor's~~)

Occupational Title	Education, work experience ~~and on-the-job~~or training typically needed
Conservation Scientists	~~Associate's/~~Bachelor's
	Bachelor's
Natural Sciences Managers	Bachelor's
Environmental Scientists	Bachelor's
Zoologists and Wildlife Biologists	Bachelor's
Foresters	

Source of this information: Occupational Information Center on ~~http://www.QualityInfo.org~~http://www.QualityInfo.org

10. What are the <u>competitive</u> educational requirements for the related occupation(s)? (~~-~~Post-secondary training, ~~,~~ Associate, or Bachelor's)

Occupational Title	Competitive Educational Requirement
Conservation Scientists	Master's
Natural Sciences Managers	Master's
Environmental Scientists	Master's
Zoologists and Wildlife Biologists	Master's
Foresters	Master's

Source of this information: Occupational Information Center on ~~http://www.QualityInfo.org~~http://www.QualityInfo.org

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11. Potential wages for this occupation

Occupational Title		Entry (use 10th percentile if available)	Avg. (use median if available)	High (use 90th percentile if available)
1.Conservation Scientists				
2.Natural Sci. Managers				
3.Environmental Scientist				
4.Zoologist/Wildlife Biol				
5.Forester				
Region	1.	$24.63 / n/a	$29.88 / n/a	$36.30 / n/a
Douglas / Lane	2.	$34.44 / $32.24	$40.78 / $50.98	$52.02 / $73.61
	3.	n/a / $22.69	n/a / $32.05	n/a / $44.51
	4.	$21.79 / $25.16	$31.36 / $30.82	$37.98 / $36.30
	5.	n/a / $23.85	n/a / $31.38	n/a / $42.13
Oregon	1.	$19.38	$34.49	$50.76
	2.	$33.84	$50.55	$70.67
	3.	$22.90	$34.61	$46.06
	4.	$20.26	$32.07	$47.55
	5.	$22.86	$30.83	$40.62

(Note: If the 10th and 90th percentile and median are not available, provide whatever wage data is available and note source of data.) Source of this information: Oregon and Regional Wage Information publications under the Publications section on ~~http://www.QualityInfo.org~~http://www.QualityInfo.org

12. How many individuals completed the indicated CIP program in Oregon? (List each training facility and degree/certificate/award combination)

Program Year	School/Training facility, Type of degree/cert./diploma/award received, # of completers	~~Type of degree/c~~	~~# of completers~~

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** Note that ~~most (or all?)~~all of these Associate's degrees listed below are technician-level A.A.S. degrees (e.g. Mt. Hood CC) and are not directly articulated with OSU's BS in Natural Resources as this program is designed to be. At present, there is only one other community college (Central Oregon CC -- not yet listed by OLMIS) that has a fully OSU-articulated Natural Resources A.S. degree.

School	City	**Programs of Training and 2012 Graduates		
Klamath Community College	Klamath Falls	Natural Resources/Conservation, General.	Associate Degree	0
Lane Community College	Eugene	Water, Wetlands, and Marine Resources Management.	Associate Degree	4
Mt Hood Community College	Gresham	Natural Resources/Conservation, General.	Associate Degree	7
Treasure Valley Community College	Ontario	Natural Resources/Conservation, General.	Associate Degree	9
		Range Science and Management. **Error!**	Associate DegreePostsec. ~~Postsec.~~	2 ~~1~~

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Wildlife, Fish and Wildlands Science and Management.	Associate Degree	2
Range Science and Management. **Error! Hyperlink reference not valid.**	Associate Degree~~Postsec. Awards/Cert./Diplomas; 1-2 yrs.~~	1 ~~2~~
Error! Hyperlink reference not valid.	~~Associate Degree~~	~~1~~
Natural Resources/Conservation, General. **Error! Hyperlink reference not valid.**	Associate Degree ~~Associate Degree~~	9 ~~2~~

Source of this information: Educational Information Center on ~~http://www.QualityInfo.org~~http://www.QualityInfo.org

13. Answer the following questions concerning career ladders/career pathways:

a. What are the potential career ladder, or "lattice," steps or the career pathway for programs completers?

This program will create the middle "step" of the Umpqua Natural Resources Pathway, a UCC partnership with the Phoenix School (local high school), Oregon Youth Conservation Corps, Umpqua Watersheds, Inc., and the Umpqua National Forest on our youth-oriented "Learn, Earn, and Serve" program funded by the USFS and the National Fish and Wildlife Foundation. Students entering the program from area high schools will be able to take their 2-year A.S. from UCC directly into the marketplace, or seamlessly transfer into OSU's Bachelor of Science~~.S.~~ program in Natural Resources in their College of Forestry. Moreover, we have 3 field methods courses designed around current agency protocols for field sampling and analysis, an Environmental Dispute Resolution course, and several new lab science courses that may be of interest to agency personnel who just need some additional training to upgrade their skills. Most of the new courses will also be available as Science courses that can be used for the AAOT. We are also in conversation with the Engineering Dept. to use several of the Natural Resources classes in Forest Engineering and Forest Management A.S. programs currently being designed to articulate with OSU's B.S. programs in those majors.

b. What is the typical education needed for these jobs?

While Natural Resource jobs are available for graduates with Associate degrees, a Bachelor of Science degree greatly increases job opportunities and pay rates. Master of Science degrees will increase the success of graduates as they move up to higher level resource management positions. This program is designed to provide the early steps in this OSU-articulated pathway.

c. Is training available for related career ladder/pathway occupation(s) and at what types of institutions?

Students who complete the Natural Resources A.S. program will also possess the background to pursue Bachelor's degrees as Natural Science Managers, Foresters, Soil and Plant Scientists, Wildlife and Fisheries Biologists, Hydrologists, Environmental Scientists and other related

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professions. As mentioned, we will be working with UCC's Engineering Dept. to develop two new OSU-articulated programs that will use several of our core courses for their curricula as well. After the roll-out of this program, we will also work toward developing similar degrees that will articulate with Fish and Wildlife B.S. degrees in OSU's College of Agriculture.

Source of this information: Occupational Information Center "related occupations" on ~~http://www.QualityInfo.org~~http://www.QualityInfo.org, Occupational Projections Handbook at ~~http://www.bls.gov/oco/home.htm~~http://www.bls.gov/oco/home.htm, general knowledge

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14. Please describe any other labor market information that may be relevant to this program ~~(i.e., It is a heavily self-employed occupation, it is a high turn-over occupation, there is currently a severe shortage of workers in the occupation, the college is collaborating with employers who have indicated there is a shortage, etc).~~

Turnover because of retirements is expected to be especially high in Natural Resource professions in the coming years as "Baby Boomer" professionals continue to "age out" of the workforce. We also believe that because of our close relationship with specialists in the Forest Service, BLM, ODF&W, the local watershed council and other public land management agencies with whom we will be working closely in the field, that our students will have a "leg up" when it comes to hiring replacements for retiring professionals.

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Pending legislation and current trends will require more thorough monitoring and analysis of both site-level and landscape-level data to plan and monitor the ecological practices that will increasingly be used to manage natural resources. Demand for broadly trained ecosystem scientist/managers will therefore increase in the public land management agencies to guide management activities, and also in private industry to meet state and federal standards.

Enrollments in OSU's Natural Resources ~~program has~~Department have grown every year since its inception, so UCC students will progress to a robust and vibrant program. Positive labor market trends have been noted above, and according to a recent report in The Oregonian (1/14/2015), OSU has just kicked off a $30 million fundraising effort as part of a planned $60 million expansion of its College of Forestry. It wants to double enrollment to 2,000 students due to projected increases in the demand for more trained Natural Resource professionals.

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Labor Market Supply and Demand Factors Explanation

The following is a narrative explanation of each of the LMI questions proposed for Standard A: Need. It is an attempt to provide clarification regarding why these questions are important to consider when evaluating a new community college programs.

Question		**Explanation**
1	What are the common job titles for the occupations that use the skills your program will teach?	This **helps assign the correct Employment Department occupational title** to the occupations individuals will be trained for in the CIP program.
		Because some CIPs can train for more than one occupation, and labor market information should be analyzed at the occupation level, defining the occupations the program will train for is necessary to access the correct labor market information.
2	What occupational title(s) used by the Employment Department's Occupational Information Center on the http://www.QualityInfo.org website most closely describes the above occupations? What is the occupational description in the Occupational Information Center?	The Employment Department compiles labor market information on over 720 occupational titles. The title(s) identified here should be the title(s) representing the occupations that program completers qualify for. There are, in reality, thousands of occupational titles. **Some community college programs will train specifically for one of the 720 occupations the Employment Department compiles labor market information for. Others do not fit neatly into these categories.** Finding labor market information for the occupations that do not fit neatly into one of the 720 occupations will take extra effort.
3	What is the current number of jobs in the occupation(s) in: Region, Oregon, Nation	The size of the occupation is **an indicator of how many jobs are available** in the occupation. Generally, the larger the occupation, the more jobs that will be available for workers. The smaller the occupation, the fewer jobs available. Starting a training program for a smaller occupation may result in too many trained workers. This is **one piece of the puzzle** that helps indicate the need for trained workers.
		Because the **workforce is mobile**, the regional, state, and national data indicate whether this is a relatively larger or smaller occupation at all three geographic levels. There may not be much demand for the occupation in the local region but there may be at the statewide or national level.
6	What is the 10-year growth rate for this occupation? Region, Oregon, Nation	Looking at the growth rate will help show the **long-term outlook**. It will show if the occupation is expected to grow, decline, or remaining the same in the long term. A growing occupation will have job openings due to growth in addition to replacing workers who leave the labor force. Training individuals in a declining occupation can result in the supply of trained individuals greater than the demand for workers.

		~~Because the **workforce is mobile**, looking at all geographic areas is important. The trend at the regional level may be different than at the state or national level.~~
		~~Keep in mind that the 10-year employment projections used to determine the growth rate are **based on the most current information available regarding the future and past trends**. The best information available is used to make the projections but the economy is ever-changing and some economic changes are not foreseen, whether it be a long-term recession or a new business entering a local economy. The growth rate is a projected rate over the long term, over the 10-year employment projections period.~~
~~**7**~~	~~What is the total annual (replacement and growth) job openings expected over the next 10 years in this occupation?~~	~~**Replacement openings** are job openings due to people leaving the labor force. **Growth openings** are job openings that are created due to growth, such as a new business opening or another expanding.~~
		~~While the total employment in the occupation indicates the relative size of the occupation, and the growth rate helps show the outlook for the occupation, the **total annual openings is an indicator of how many job openings are expected each year due to growth and replacement job openings.** Occupations with lower numbers of annual job openings will have fewer opportunities than those with higher numbers of openings. The number of annual job openings does not include turnover, or the movement of individuals from one job to another. It does cover the new (growth) jobs and the job openings due to individuals leaving the labor force (replacement).~~
~~**8**~~	~~Is a license required to perform this occupation in the state of Oregon?~~	~~For occupations that are significantly self-employed or for occupations that do not match one of the Employment Departments occupational titles, **the number of occupational licenses is another indicator** of the number of people available for this occupation.~~
~~**9**~~	~~**What are the education, work experience, and on-the-job training typically needed for the related occupation(s)?**~~	~~This question indicates the typical level of education, on-the-job training, and work experience generally required by employers hiring people in this occupation**. If this level is different than that offered by the community college, there may be a mismatch between the training program and the education employers look for when hiring.**~~
		~~Employers may generally seek individuals with more than a community college education, in which case **the training program may be a step to the four-year college level training**, or on the other hand, **they may hire workers with less than a community college education.** In this case, it would be necessary to look into why they are hiring at a lower level, if formal training is necessary to get a job, or if the community college training would make them more competitive in the labor market.~~

		Of course, **not all jobs within an Employment Department - defined occupational category necessarily have the same minimum educational requirement.** One employer, for instance, may ask that an individual have a degree to work as an animal caregiver, another may only ask for experience working with animals. So this typical level needed **is a guide**. If there is a question about how this requirement compares to the proposed training, further investigation into the requirements of potential employers of graduates may be merited.
10	**10. What are the competitive educational requirements for the related occupation(s)?** (Post-secondary training, , Associate, or Bachelor's)	**The competitive educational level indicates the level that is one step beyond the typical requirement.** This level is important because gaining a competitive level of education may aid the job seeker in obtaining employment, making them more attractive to employers than other job seekers with less education. On the other hand, if there are lots of job openings and too few job seekers, the competitive edge may not be necessary.
		Like the typical educational requirements, not all jobs within an occupational category necessarily have the same competitive educational requirement.
11	Potential wages for this occupation in Region and Oregon:	**Starting, as well as average and higher wage levels, should be considered when analyzing a training program.** Individuals considering extensive training for occupations that pay lower wages may not enter those programs if they have to invest a lot of resources in a program that results in a low paying job, especially if employers don't generally ask for formal training. When considering a new program that trains for a lower paying job, colleges should be aware of this issue.
		If a program trains for a lower wage job, **consider wages along with the potential career ladder/lattice** for the position. It may be that it is a lower paying occupation but there are numerous career opportunities ahead for graduates.
		The actual wages of individuals will vary. The Oregon Employment Department wage data is based on employer surveys of what they are paying their employees**. These figures are a guide, but should be viewed as a range,** not absolute figures.
12	How many individuals completed the related CIP program in Oregon? (List each training facility and degree/certificate/award combination)	This is one indication of the **supply of individuals entering the workforce** who are trained in this occupation. If the number of people completing the training program far exceeds the number of people needed to fill job openings, there is potentially a worker surplus. If the number of completers is much less than the number of job openings, there is potentially a need for more trained individuals.

13	Answer the following questions concerning career ladders/career pathways: a. What are the potential career ladder or "lattice " steps or the career pathway for programs completers? b. **What is the typical education needed for these jobs?** c. Is training available for related career ladder/pathway occupation(s) and at what types of institutions?	**The potential for advancement may or may not exist for different occupations.** Some occupations have obvious career ladders or career pathways, and others do not. With today's ever-changing economy, having skills that will transfer to another occupation is very helpful to ensure continued employment. One way to identify if transferable skills will help program completers find jobs in other occupations if they so desire is by looking at other related occupations that would be a natural progression, either as a ladder-step or lattice-move, or as part of an identified pathway. Programs with **potential for advancement may be more appealing** to some individuals than those which do not have advancement potential. Some career ladders and pathways may be difficult to identify, or they may be more like a career "lattice" than a ladder. Identifying any career opportunities to show potential advancement and where transferable skills could be applied **helps show the complete potential for program completers.**
14	Please describe any other labor market information that may be relevant to this program (i.e., It is a heavily self-employed occupation, it is a high turn-over occupation, there is currently a severe shortage of workers in the occupation, the college is partnering with a private employer who had indicated there is a shortage, etc)	This is a chance to add **any other information.** For example, maybe the employment data does not show a significant demand for an occupation, but after the most recent employment figures available from the Employment Department were calculated, a new firm made plans to move into the area near the community college and will be hiring workers. This is considered labor market information because it is an increase in the demand for workers, but it is not reflected in the employment data.

UCC Course Revision

Basic Information

Name of Course Revision Contact: Jillanne Michell
Date: April 6, 2015
Contact Title: Chair of Humanities
Department: Humanities
Course Number: ENG 201
Course Title: Shakespeare

Course Revision Information

Type of change

_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: Fall 2015

Parent Program: English

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
The English department would like to revise the three-term Shakespeare sequence (ENG 201, 202, and 203) into a two-term sequence (ENG 201 and 202). The courses of the previous three-term sequence were developed as three-credit courses, and with the move to four-credit courses, it makes sense to consolidate the courses. The three-course sequence was organized chronologically: 201 with early works, 202 with middle works, and 203 with later works. The two-course sequence can maintain this chronological organization: 201 with early to middle works and 202 with middle to later works. Many other institutions, including the University of Oregon, offer Shakespeare in two courses, rather than three. This will free up an instructor for a term to teach a different literature course, increasing the variety of our offerings.

Course Revision Impacts - *select all that apply*

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

List current information and proposed changes

	CURRENT			PROPOSED *if no changes put "same"*
Course number	ENG 201		Course number	ENG 201
Course title	Shakespeare		Course title	Shakespeare
Credits	4		Credits	4
Lecture Hrs/Wk	4		Lecture Hrs/Wk	4
Lec/Lab Hrs/Wk	0		Lec/Lab Hrs/Wk	0
Lab/Hrs/Wk	0		Lab/Hrs/Wk	0
Practicum	0		Practicum	0
Banner/Instr. Prerequisites	Inrstructor Recommended Prerequisite		Banner/Instr. Prerequisites	Instructor Recommended Prerequisite
Co-requisites	none		Co-requisites	none
Length (Weeks)	11		Length (Weeks)	11
Terms Offered	Fall, Summer		Terms Offered	Fall, Summer
Grading Option			Grading Option	
Load Factor	4.0		Load Factor	4.0

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

_x_ Course Outline - required

__ Other:

UCC Course Outline

Course No: ENG 201
Course Credit: 4
Lecture Hrs/wk: 4
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: 0
Practicum Hrs/Wk: 0
Clock Hours:44
Length of Course: 11 weeks
Banner enforced Prerequisite: none
Instructor Recommended Prerequisite: WR 095 with a minimum grade of C or appropriate placement test score, AND RD 090 with a minimum grade of C or appropriate placement test score
Co-Requisite: none
Load Factor:4.0
Activity Code: 100 Lower Division Collegiate
CIPS: 239900

Course Title: Shakespeare
Developed By**:** Dr. Jillanne Michell
Development Date: Unknown
Revision Date: April 2015
Review Date:

COURSE DESCRIPTION: The Shakespeare sequence (ENG 201 and 202) provides an introduction to Shakespeare's dramatic work and poetry. It proceeds chronologically: ENG 201 focuses on selected comedies, tragedies, histories, and poems from Shakspeare's early to middle career; ENG 202 focuses on selected comedies, tragedies, romances, and poems from Shakespeare's middle to late career. Students will learn to interpret Shakespeare's work using a variety of critical strategies, including literary, historical, sociological, psychological, and philosophical approaches. They will study Shakespeare's langauge and poetry, including a focus on vocabulary, figurative language, and allusions. Topics include early modern ideas and attitudes about gender, sexuality, class, and identity; Shakespeare's influences and sources, both classical and contemporary; historical and contemporary conventions of drama; changing perceptions of Shakespeare through history; Elizabethan and Jacobean politics in City and Court; Shakespeare's subversion and/or support of cultural norms; and Shakespeare's representation of women and other marginalized groups.

COURSE OUTCOMES: Upon successful completion of this course, students will be able to
1. Identify and describe selected works from Shakespeare's early to mid-career comedies, tragedies, histories, and poems, including the ability to distinguish plots, character types, themes, and generic conventions.
2. Recognize distinctive features of Shakespeare's language, both prose and poetry--especially his use of metaphors, similes, and allusions--and accurately interpret that language.
3. Analyze and understand the cultural, historical, social, psychological, and aesthetic significance of Shakespeare's texts.

4. Analyze and interpret Shakespeare's works, demonstrating critical reading, thinking, writing, and communication skills, including the ability to support interpretations with textual evidence.
5. Access and evaluate both traditional and electronic sources to research information and locate professional literary criticism, and employ the MLA system of documentation, including proper format and attribution of sources in written work.

UCC Course Revision

Basic Information

Name of Course Revision Contact: Jillanne Michell
Date: April 6, 2015
Contact Title: Chair of Humanities
Department: Humanities
Course Number: ENG 202
Course Title: Shakespeare

Course Revision Information

Type of change

_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: Fall 2015

Parent Program: English

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
The English department would like to revise the three-term Shakespeare sequence (ENG 201, 202, and 203) into a two-term sequence (ENG 201 and 202). The courses of the previous three-term sequence were developed as three-credit courses, and with the move to four-credit courses, it makes sense to consolidate the courses. The three-course sequence was organized chronologically: 201 with early works, 202 with middle works, and 203 with later works. The two-course sequence can maintain this chronological organization: 201 with early to middle works and 202 with middle to later works. Many other institutions, including the University of Oregon, offer Shakespeare in two courses, rather than three. This will free up an instructor for a term to teach a different literature course, increasing the variety of our offerings.

Course Revision Impacts - *select all that apply*

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

List current information and proposed changes

	CURRENT			**PROPOSED** *if no changes put "same"*
Course number	ENG 202		Course number	ENG 202
Course title	Shakespeare		Course title	Shakespeare
Credits	4		Credits	4
Lecture Hrs/Wk	4		Lecture Hrs/Wk	4
Lec/Lab Hrs/Wk	0		Lec/Lab Hrs/Wk	0
Lab/Hrs/Wk	0		Lab/Hrs/Wk	0
Practicum	0		Practicum	0
Banner/Instr. Prerequisites	Instructor Recommended Prerequisite		Banner/Instr. Prerequisites	Instructor Recommended Prerequisite
Co-requisites	none		Co-requisites	none
Length (Weeks)	11		Length (Weeks)	11
Terms Offered	Winter, Summer		Terms Offered	Winter, Summer
Grading Option			Grading Option	
Load Factor	4.0		Load Factor	4.0

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

_x_ Course Outline - required

__ Other:

UCC Course Outline

Course No: ENG 202
Course Credit: 4
Lecture Hrs/wk: 4
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: 0
Practicum Hrs/Wk: 0
Clock Hours:44
Length of Course: 11 weeks
Banner enforced Prerequisite: none
Instructor Recommended Prerequisite: WR 095 with a minimum grade of C or appropriate placement test score, AND RD 090 with a minimum grade of C or appropriate placement test score
Co-Requisite: none
Load Factor:4.0
Activity Code: 100 Lower Division Collegiate
CIPS: 239900

Course Title: Shakespeare
Developed By**:** Dr. Jillanne Michell
Development Date: Unknown
Revision Date: April 2015
Review Date:

COURSE DESCRIPTION: The Shakespeare sequence (ENG 201 and 202) provides an introduction to Shakespeare's dramatic work and poetry. It proceeds chronologically: ENG 201 focuses on selected comedies, tragedies, histories, and poems from Shakespeare's early to middle career; ENG 202 focuses on selected comedies, tragedies, romances, and poems from Shakespeare's middle to late career. Students will learn to interpret Shakespeare's work using a variety of critical strategies, including literary, historical, sociological, psychological, and philosophical approaches. They will study Shakespeare's language and poetry, including a focus on vocabulary, figurative language, and allusions. Topics include early modern ideas and attitudes about gender, sexuality, class, and identity; Shakespeare's influences and sources, both classical and contemporary; historical and contemporary conventions of drama; changing perceptions of Shakespeare through history; Elizabethan and Jacobean politics in City and Court; Shakespeare's subversion and/or support of cultural norms; and Shakespeare's representation of women and other marginalized groups.

COURSE OUTCOMES: Upon successful completion of this course, students will be able to
1. Identify and describe selected works from Shakespeare's middle to late-career comedies, tragedies, and romances, including with the ability to distinguish plots, character types, themes, and generic conventions.
2. Recognize distinctive features of Shakespeare's language, both prose and poetry--especially his use of metaphors, similes, and allusions--and accurately interpret that language.

3. Analyze and understand the cultural, historical, social, psychological, and aesthetic significance of Shakespeare's texts.
4. Analyze and interpret Shakespeare's works, demonstrating critical reading, thinking, writing, and communication skills, including the ability to support interpretations with textual evidence.
5. Access and evaluate both traditional and electronic sources to research information and locate professional literary criticism, and employ the MLA system of documentation, including proper format and attribution of sources in written work.

UCC Course Revision

Basic Information

Name of Course Revision Contact: Jillanne Michell
Date: April 6, 2015
Contact Title: Chair of Humanities
Department: Humanities
Course Number: ENG 203
Course Title: Shakespeare

Course Revision Information

Type of change

__ Revision
__ Reactivation
_X_ Deletion

Date, Year, and Term of Proposed Revision: Fall 2015

Parent Program: English

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
The English department would like to revise the three-term Shakespeare sequence (ENG 201, 202, and 203) into a two-term sequence (ENG 201 and 202). The courses of the previous three-term sequence were developed as three-credit courses, and with the move to four-credit courses, it makes sense to consolidate the courses. The three-course sequence was organized chronologically: 201 with early works, 202 with middle works, and 203 with later works. The two-course sequence can maintain this chronological organization: 201 with early to middle works and 202 with middle to later works. Many other institutions, including the University of Oregon, offer Shakespeare in two courses, rather than three. This will free up an instructor for a term to teach a different literature course, increasing the variety of our offerings.

Course Revision Impacts - *select all that apply*

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

List current information and proposed changes

	CURRENT			PROPOSED *if no changes put "same"*
Course number	ENG 203		Course number	ENG 203
Course title	Shakespeare		Course title	Shakespeare
Credits	4		Credits	
Lecture Hrs/Wk	4		Lecture Hrs/Wk	
Lec/Lab Hrs/Wk	0		Lec/Lab Hrs/Wk	
Lab/Hrs/Wk	0		Lab/Hrs/Wk	
Practicum	0		Practicum	
Banner/Instr. Prerequisites	Instructor Recmomended Prerequisite		Banner/Instr. Prerequisites	
Co-requisites	none		Co-requisites	
Length (Weeks)	11		Length (Weeks)	
Terms Offered	Spring		Terms Offered	None
Grading Option			Grading Option	
Load Factor	4.0		Load Factor	

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

_ Course Outline - required

__ Other:

Basic Information

Name of Course Revision Contact: Ken Carloni
Date: Feb. 2015
Contact Title: Dept. Chair
Department: Science
Course Number: CH 112
Course Title: Principles of Biology

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: Fall 2015

Parent Program: Science

Course Revision Description and Justification

This revision 1) changes the pre- corequisite for this course to include CH 112, and 2) updates the course outcomes to more accurately reflect what is currently being taught.

Course Revision Impacts - *select all that apply*

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact

This may increase enrollment in CH 112 slightly while causing a corresponding decline in CH 221. It will therefore have little impact on overall enrollments in the Science Dept..

UCC Course Outline

Course No:	BI 211
Course Credit:	5
Lecture Hrs/wk:	4
Lab Hrs/Wk:	3
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	55
Length of Course	11 wks.
Banner enforced Prerequisite:	CH 112 or CH 221
Instructor enforced Prerequisite:	
Co-Requisite:	CH 112 or CH 221
Load Factor:	6.1 ILCs
Activity Code:	100
CIPS:	260101

Course Title: Principles of Biology
Developed By**: Ken Carloni**
Development Date: Sept. 1991
Revision Date: Nov. 2004; Feb. 2015
Review Date:

COURSE DESCRIPTION:
Chemistry of life; origin and history of life; population genetics and natural selection; diversity of prokaryotes and eukaryotes; ecology of biomes, communities and populations; conservation biology.

COURSE OUTCOMES:

Upon successful completion of BI 211, students will be able to:

- demonstrate a basic understanding of the evolution of biological systems, the origins and diversity of living organisms, the flow of energy and the cycling of nutrients through ecosystems, the effects of positive and negative feedback on living systems, and the forces that generate biodiversity and maintain stability in ecosystems.
- demonstrate proficiency with laboratory equipment and procedures for gathering data.
- construct a hypothesis, and apply the methods necessary to gather and analyze data to test that hypothesis.
- demonstrate proficiency in the use of word processing, spreadsheet and presentation software to record, analyze and communicate the results of their investigations.
- use standard scientific report writing format including internal citations for documenting literature used in writing assignments and labs.
- solve problems as individuals and in groups.
- evaluate the impacts of biology on society.

Course Outline

I. Origin and History of Life
   A. Chemistry of life
   B. Chemical and Biological Evolution
   C. History of Life

II. Evolution of Diversity
   A. Domains and Kingdoms
   B. Prokaryotes
   C. Protists
   D. Fungi
   E. Plants
   F. Animals

III. Ecology
   A. Ecological systems from populations to the biosphere
   B. Conservation biology

UCC Course Outline

Course No:	CH 112
Course Credit:	5
Lecture Hrs/wk:	4
Lab Hrs/Wk:	3
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	77
Length of Course	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	6.1 ILCs
Activity Code:	100
CIPS:	260101

Course Title: Fundamentals of Chemistry
Developed By**:** Dale Champion and others
Development Date: 2006
Revision Date: Feb. 2015
Review Date:

COURSE DESCRIPTION:

This is a one-term entry level chemistry course designed for individuals not previously exposed to chemistry. Basic knowledge and skills are developed in Inorganic, Organic, and Biochemistry for general application in a wide range of professions.

COURSE OUTCOMES:

Upon completion of this course, students will be able to:

1. Demonstrate a basic knowledge of core content including the theory, principles, and applications of atomic structure, periodic law, stoichiometry, nomenclature, states and classification of matter, mole relationships, chemical bonding, reaction rates, radioactivity, organic and biological molecules.
2. Describe how models are used to help our understanding of atomic structure.
3. Explain how radiation, half-life, and transmutation pertain to isotopes.
4. Use Kinetic-molecular theory to explain the different states of matter and their properties.
5. Understand how the Periodic Chart is organized in terms of repeating patterns of atomic structure that determine the properties of the various families of elements.
6. Explain how intermolecular interactions cause a wide variety of chemical phenomena.
7. Understand the basic principles involved in acid-base and redox chemistry.
8. Describe the structure and role of various organic compounds important to biochemistry.

9. Solve problems using dimensional analysis.
10. Solve problems using the correct number of significant figures.
11. Write and balance chemical equations.
12. Use IUPAC nomenclature for ionic, covalent, acidic/basic compounds and organic compounds
13. Following standard lab safety protocols, perform basic laboratory techniques including accurate measurement of mass and volume using a variety of lab specific techniques and apparatus.
14. Demonstrate higher level thinking skills and effective communication in the subject areas of chemistry and biochemistry.

COURSE OUTLINE

- Matter, Atoms, Measurement and Significant Figures
- Electronic Structure & Periodic Law, Separation of Mixtures
- Forces & Chemical Reactions, Nomenclature
- States of Matter, Lewis Structures and Molecular Models
- Solutions & Reaction Rates, Energy Content of Foods
- Reaction Rates & Acid/Base/Salts, Chemical Reactions
- Radioactivity, Solutions
- Alkanes, Alkenes and Alkynes; Acid/Base Titration
- Carbohydrates & Proteins, Modelling Organic Molecules
- Lipids & Nucleic Acids

Basic Information

Name of Course Revision Contact: Ken Carloni
Date: Feb. 2015
Contact Title: Dept. Chair
Department: Science
Course Number: CH 112
Course Title: Fundamentals of Chemistry (title change from Chemistry for Health Occupations)

Course Revision Information

Type of change

_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: Fall 2015

Parent Program: Science

Course Revision Description and Justification

This revision 1) changes the name to apply to a broader range of programs and majors including natural Resources majors, and 2) updates the course outcomes to more accurately reflect what is currently being taught.

New course catalog description: This is a one-term entry level chemistry course designed for individuals not previously exposed to chemistry. Basic knowledge and skills are developed in Inorganic, Organic, and Biochemistry for general application in a wide range of professions.

Course Revision Impacts - *select all that apply*

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact

This will increase enrollment in CH 112 and will offset shrinking enrollment. It will therefore have little impact on the status quo.

UCC Program Revision

Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

Basic Information

Name of Program Revision Contact: Gwen Soderburg-Chase

Contact Title: Dept Chair

Department: Early Childhood Education

Program Revision Information

Date, Year, and Term of Proposed Revision: Summer, 2016

Program Title: Early Childhood Education, AAS

Revision Type - *select all that apply*

__ Credits
__ Title
__ Summary
__ Outcomes
X_ Curriculum
__ Suspension
__ Reactivate
__ Delete
__ Repackage for a new area of concentration or certificate within existing program.
__ Other: *(please describe)*

Revised Outcomes *(If needed)*

Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.

1. The AAS currently requires students to complete MUS 202 (3 cr). This program update will expand the list of choices that meet this requirement by approving MUS 105, 201, 203, 204 and 205 as alternatives. These options will provide students with more flexibility to complete their degree.
2. The program currently requires students to complete SOC 213 (3 cr). Program update will approve ED 258 as an alternative that would also meet that credit requirement.

Program Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Please list changes to program course listing below.

CURRENT				PROPOSED		
Course #	**Course Title**	**Credits**		**Course #**	**Course Title**	**Credits**
MUS 202	Introduction to Music and Its Literature	3		MUS 202, 105, 201, 203, 204, 205	Choose one of these approved options	3
SOC 213	Race, Ethnicity and Class	3		SOC 213 OR ED 258	Race, Ethnicity and Class OR Multicultural Education	3

					Total credits for Program	93 -No change

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

__ **Curriculum Revision Form**

__ **Start-Up and First Year Budget**

__ **Other**: