Tech Prep
In
Water Management

A consortium of High School, Community College and University Departments

This document contains student competency requirements for the specialized area of:

Watershed Management;
Hydrologic Cycle &
Climate Change
WMGT 139A

To receive college credit, a student must complete at least 80% of the competencies. The high school instructor should initial each competency area that is completed by the student. By initialing these competencies, the instructor is insuring that the student has completed the required work at a level that should receive college credit.

Revision date: 6/24/09
Watershed Management; Hydrologic cycle & climate change

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<thead>
<tr>
<th>COMPETENCY AREAS</th>
<th>Credit Earned</th>
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<tbody>
<tr>
<td>Earth's Atmosphere and Atmospheric Moisture</td>
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<tr>
<td>Weather and the Hydrologic Cycle</td>
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<tr>
<td>Climate Change and Impacts of Climate Change</td>
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<tr>
<td>Watershed Ecology</td>
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Student Name: _______________________________________________________

High School: _______________________________________________________

Course grade given: __________

I verify the above student has received instruction on all competencies and successfully mastered a minimum of 80% of the identified competencies. The student has received a grade of B or better for the articulated high school course.

High School Instructor Signature: __________________________

Date: ________________
Watershed Management; Hydrologic Cycle & Climate Change

Rating Scale for Performance Tasks:

This course will cover the earth’s atmosphere, atmospheric moisture, the hydrologic cycle, weather and climatic conditions. The course will explore the potential effects climate change has on watersheds, water supplies and watershed ecology.

4 - Highly Skilled/Proficient
Student can complete the competency accurately.
Student can direct others to do the competency.
Student needs little supervision.
Written tests, 90%

3 – Skilled/Performs with Minimum Supervision
Student can perform all parts of the competency.
Student needs only completed work spot-checked.
A student meets speed and accuracy requirements (if any).
Student needs minimum supervision.
Written tests, 80%

2 - Limited Skills/Performs with Close Supervision
Student can perform most parts of the competency.
Student needs help with only the most difficult parts.
Student needs close supervision.
Written tests, 70%

1 – Exposure/Introductory
Student can do simple basics of this competency with very close supervision.

0 - No exposure/Not Taught
Student has had no exposure to this competency

WMGT 139B requires documentation. Please make sure that it is included in the Portfolio. If these items are not included, credit will not be given for the class.

The following items are required in the portfolio:
1. A copy of the student’s class assignments and section test. For further details please contact Gerald J. Anhorn at WWCC.
2. The student’s narrative answers to all discussion points and other comments associated with each discussion point.
Watershed Management; Hydrologic Cycle & Climate Change

Module 1: Earths Atmosphere and Atmospheric Moisture

1.0 The student describes relationship of atmospheric pressure and height.
2. The student will identify the four temperature zones of the atmosphere.
3. Define what makes the Troposphere different from other zones.
4. Define the function of the ionosphere and ozonosphere.
5. Describe the green house affect.
6. Identify greenhouse gasses.
7. Identify the four forces affecting wind direction and speed
8. Define the Coriolis effect
9. Identify the earths’ water resources, quantities and types.
10. Define humidity
11. Explain cloud formation and types of clouds

Module 2: Weather and the hydrologic cycle

1. Define how the atmosphere and hydrosphere interact
2. Identify how air masses are modified.
3. Identify the four atmospheric lifting mechanisms
4. Define cyclogenesis
5. Describe the hydrologic cycle
6. Explain the importance of precipitation, evaporation and condensation
7. Identify inputs, outputs and storage in regards to the hydrologic cycle.
8. Define the soil-water budget concept.
Module 3: Climate Change and impact of Climate Change

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<td>4 3 2 1 0</td>
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1. Differentiate between weather and climate
2. Identify climate controls
3. Identify the role of the hydrologic cycle in the climate system
4. Differentiate between earth’s natural climate fluctuations and fluctuations which are induced by humans.
5. Identify how radiative transfer affects temperature.
6. Identify regional consequences of climate change
7. Identify the scientific consensus points on climate change
8. Define ecosystem services
9. Identify ecosystem services which will be impacted by climate change.
10. Identify how biological life helps to control the earth’s climate.

Module 4: Watershed Ecology

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1. Define and Identify a watershed
2. Identify the components of the physical setting
3. Identify the components of the biological setting
4. Define an indicator species and identify a local example
5. Define biodiversity
6. Identify the four types of biodiversity
7. Explain the natural system concept
8. Define the river continuum concept.