Document N: Course and Program Development:
IMPACT AND APPROVAL SIGNATURES

See Course and Program Development Policy and Procedures (www.ubalt.edu/provost) for instructions.

SCHOOL: 
- LAW [ ]
- MSB [ ]
- CAS [ ]
- CPA [ ]

CONTACT NAME: Brittan Wilson
PHONE: 410-837-5335

DEPARTMENT/DIVISION: Science, Information Arts and Technologies
DATE PREPARED: 10/3/12

PROPOSED SEMESTER OF IMPLEMENTATION: 
- fall [ ]
- spring [ ]

TYPE OF ACTION: 
- add (new) [ ]
- deactivate [ ]
- modify [ ]
- other [ ]

LEVEL OF ACTION: 
- noncredit [ ]
- undergraduate [ ]
- graduate [ ]
- other [ ]

ACTION BEING REQUESTED (select one category, either Course Actions or Program Actions):

1. COURSE ACTIONS

Original Subject Code/Course Number: ENVS 285
Original Course Title: Environmental Chemistry

Select one or multiple actions from one of the lists below (review the list of necessary documents and signatures):

<table>
<thead>
<tr>
<th>COURSE ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Experimental Course</td>
</tr>
<tr>
<td>2. Course Title</td>
</tr>
<tr>
<td>3. Course Credits</td>
</tr>
<tr>
<td>4. Course Number</td>
</tr>
<tr>
<td>5. Course Level</td>
</tr>
<tr>
<td>6. Pre- and Co-Requisite</td>
</tr>
<tr>
<td>7. Course Description</td>
</tr>
<tr>
<td>8. New Course [ ]</td>
</tr>
<tr>
<td>9. Deactivate Course</td>
</tr>
<tr>
<td>10. Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROGRAM ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Program Requirements</td>
</tr>
<tr>
<td>11a. Undergraduate Specialization (24 credits or fewer)</td>
</tr>
<tr>
<td>11b. Master's Specialization (12 credits or fewer)</td>
</tr>
<tr>
<td>11c. Doctoral Specialization (18 credits or fewer)</td>
</tr>
<tr>
<td>12. Minor (add or delete)</td>
</tr>
<tr>
<td>13. Closed Site Program</td>
</tr>
<tr>
<td>14. Program Suspension</td>
</tr>
<tr>
<td>15. Program Reactivation</td>
</tr>
<tr>
<td>16a. Certificate Program (UG/G) exclusively within existing degree program</td>
</tr>
<tr>
<td>16b. Certificate Program (UG/G) outside of or across degree programs (12 or more credits)</td>
</tr>
<tr>
<td>17. Off-Campus Delivery of Existing Programs</td>
</tr>
<tr>
<td>18a. Undergraduate Concentration (exceeds 24 credits)</td>
</tr>
<tr>
<td>18b. Master's Concentration (exceeds 12 credits)</td>
</tr>
<tr>
<td>18c. Doctoral Concentration (exceeds 18 credits)</td>
</tr>
<tr>
<td>19. Program Title Change</td>
</tr>
<tr>
<td>20. Program Termination</td>
</tr>
<tr>
<td>21. New Degree Program</td>
</tr>
<tr>
<td>22. Other</td>
</tr>
</tbody>
</table>

ADDITIONAL DOCUMENTATION (check all appropriate boxes of documents included; review the list of necessary documents):

- summary proposal (O)
- course definition document (P)
- full five-page MHEC proposal (Q)
- financial tables (MHEC) (R)
- other documents as may be required by MHEC/USM (S)
- other (T)
**IMPACT REVIEW** (review the list of necessary signatures):

<table>
<thead>
<tr>
<th>Impacted Entity</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Library</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. OTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. University Relations</td>
<td></td>
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<tr>
<td>d. Admissions</td>
<td></td>
<td></td>
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<tr>
<td>e. Records</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**APPROVAL SEQUENCE** (review the list of necessary signatures):

<table>
<thead>
<tr>
<th>Approval Level</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Department/Division (Chair)</td>
<td>[Signature]</td>
<td>10/3/12</td>
</tr>
<tr>
<td>B. General Education (for No. 7, 8)</td>
<td>[Signature]</td>
<td>11/3/12</td>
</tr>
<tr>
<td>C. Final Faculty Review Body Within Each School (Chair)</td>
<td>[Signature]</td>
<td>11/3/12</td>
</tr>
<tr>
<td>D. Dean</td>
<td>[Signature]</td>
<td>11/12/12</td>
</tr>
<tr>
<td>E. University Faculty Senate (Chair)</td>
<td>[Signature]</td>
<td></td>
</tr>
<tr>
<td>F. University Council (Chair)</td>
<td>[Signature]</td>
<td></td>
</tr>
<tr>
<td>G. Provost and Senior Vice President for Academic Affairs</td>
<td>[Signature]</td>
<td>4/1/13</td>
</tr>
<tr>
<td>H. President</td>
<td>[Signature]</td>
<td></td>
</tr>
<tr>
<td>I. Board of Regents (notification only)</td>
<td>[Signature]</td>
<td></td>
</tr>
<tr>
<td>J. Board of Regents (approval)</td>
<td>[Signature]</td>
<td></td>
</tr>
<tr>
<td>K. MHEC (notification only)</td>
<td>[Signature]</td>
<td></td>
</tr>
<tr>
<td>L. MHEC (approval)</td>
<td>[Signature]</td>
<td></td>
</tr>
<tr>
<td>M. Middle States Association notification</td>
<td>Required only if the University's mission is changed by the action</td>
<td></td>
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1 University Council review (for recommendation to the president or back to the provost) shall be limited to curricular or academic policy issues that may potentially affect the University's mission and strategic planning, or have a significant impact on the generation or allocation of its financial resources.
### Document O: Course and Program Development: SUMMARY PROPOSAL

See Course and Program Development Policy and Procedures (www.ubalt.edu/provost) for instructions.

**SCHOOL:**
- LAW
- MSB
- CAS
- CPA

**CONTACT NAME:** Brittan Wilson  
**PHONE:** 410-837-5335

**DEPARTMENT/DIVISION:** Science, Information Arts and Technologies  
**DATE PREPARED:** 10/3/12

**PROPOSED SEMESTER OF IMPLEMENTATION:**  
- fall
- spring  
**YEAR:** 2014

**ACTION BEING REQUESTED** (select one category, either Course Actions or Program Actions):

- **COURSE ACTIONS**
- **PROGRAM ACTIONS**

<table>
<thead>
<tr>
<th>Original Subject Code/Course Number:</th>
<th>Original Program Title:</th>
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<tr>
<td>ENVS 285</td>
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**Original Course Title:** Environmental Chemistry

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**For changes to existing courses:**

<table>
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<tr>
<th>OLD TITLE</th>
<th>SUBJECT CODE/COURSE NO.</th>
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<table>
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<tr>
<th>NEW TITLE</th>
<th>SUBJECT CODE/COURSE NO.</th>
<th>CREDITS</th>
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Summer 2010
A new course, ENVS 285 Environmental Chemistry, is being proposed.

**SET FORTH THE RATIONALE FOR THIS PROPOSAL:**

Students in the Environmental Sustainability and Human Ecology Program need to have a solid understanding of chemistry, especially as it pertains to environmental science. Currently, students are required to take CHEM 101, but this has been found to be inadequate for their needs. ENVS 285 is designed specifically to meet those needs and it will eventually replace CHEM 101 in the EVSHE curriculum. It will be offered as an elective in its first run.
**1. DATE PREPARED**

October 3, 2012

**2. PREPARED BY**

Brittan Wilson

**3. DEPARTMENT/DIVISION**

Science, Information Arts and Technologies

**4. COURSE NUMBER(S) with SUBJECT CODE(S)**

ENVS 285

**5. COURSE TITLE**

Environmental Chemistry

**6. CREDIT HOURS**

4

**7. CATALOG DESCRIPTION**

Exploration of the fundamental principles of chemistry as they apply to the natural cycles of compounds in the environment, focusing on the source, fate and reactivity of compounds in natural and polluted environments. Emphasis is placed on environmental changes due to human activity, especially those related to land use and the exploitation of aquatic resources. Issues discussed include climate change, air pollution, industrial and municipal waste in waterways, and chemical cycling in urban areas.

**8. PREREQUISITES**

Science of the Environment (ENVS 221)

**9. COURSE PURPOSE** (how the course is to be used in the curriculum; e.g., required for the major, elective, etc.)

Elective (and eventually a requirement) in the Environmental Sustainability and Human Ecology major

**10. GENERAL EDUCATION AREA** (if applicable; e.g., social sciences, humanities, mathematics, etc.)

n/a

**11. COURSE TYPE/COMPONENT** (clinical, continuance, discussion, field studies, independent study, laboratory, lecture, practicum, research, etc.)

Summer 2010
12. FACULTY QUALIFIED TO TEACH COURSE

Brittan Wilson, Wolf Pecher, Stanley Kemp

13. CONTENT OUTLINE

I. General Review of Chemistry and Global Cycles
   a. Period Chemistry
   b. Stoichiometry
   c. Thermodynamics
   d. Global cycles
      i. Water cycle
      ii. Carbon cycle
      iii. Nitrogen cycle
      iv. GIS Mapping of chemical fluxes and reservoirs

II. Water Chemistry and Pollution
   a. Chemistry of natural waters (freshwater and marine)
   b. Seasonal variance in water chemistry
   c. Pollution sources and purification methods
      i. Organic compounds
      ii. Heavy metals
   d. Implications on ecosystems of changes in water chemistry

III. Atmospheric Chemistry and Global Concerns
   a. Stratospheric Chemistry (components and cycles)
   b. Alterations in the atmosphere due to anthropogenic activities
      i. Global climate change
      ii. Ozone layer shifts
      iii. Acid rain
      iv. Energy technologies
      v. GIS mapping of air quality related to urban centers and industrial activity
   c. Radioactive compounds as atmospheric tracers

IV. Terrestrial Chemistry and Land Use Concerns
   a. Global geochemical cycles and tectonics
   b. Soils formation and function
   c. Sedimentary processes
   d. Urban systems – alterations to natural cycles and processing of compounds
      i. GIS mapping
   e. Solid Waste Management and Recycling of Materials
   f. Radioactive Compounds
      i. Dating geochemical cycles
      ii. Hazardous waste

14. LEARNING GOALS

Summer 2010
• to demonstrate comprehension of the basic terminology and fundamental concepts of chemical processes in the environment
• to identify and characterize the fundamental biogeochemical cycles of the environment at multiple scales from the local environment to global cycles
• to use the basic tools and techniques involved in field studies and laboratory analysis of field samples
• to utilize mapping software to describe and interpret chemical changes in an urban environment
• to be able to analyze scientific data using basic descriptive and inferential statistical techniques
• to demonstrate technical communication skills
• to be able to assess/summarize peer reviewed materials

15. ASSESSMENT STRATEGIES

• Written Exams
• Technical writing of laboratory projects in manuscript format
• Assignments for technical skills in calculation and mapping processes

16. SUGGESTED TEXT(S) and MATERIALS (e.g. textbooks, equipment, software, etc., that students must purchase)


17. SPECIAL GRADING OPTIONS (if applicable)

NA

18. SUGGESTED CLASS SIZE

32

19. LAB FEES (if applicable)

$65 per course

Laboratory fees cover additional instructional costs incurred in the operation of sciences laboratories necessary for teaching these courses, including consumables (e.g., rubber gloves, microscope slides, and dialysis tubing) and the purchase and maintenance of laboratory equipment (e.g., microscopes, hot water baths, and fume hoods).