

UNIVERSITY OF CENTRAL ARKANSAS
ACADEMIC ASSESSMENT PLAN
Requirements, Template, and Example

Requirements

1. *Submit with New Program Proposal*
 - a. *Programs are encouraged to consult with the Office of University Assessment.*
 - b. *Contact information assessment@uca.edu*
2. *Send copy of Assessment Plan to the Office of University Assessment, Wingo 215.*
3. *Update the Program Assessment Plan based upon EAPR or Accreditation Cycles.*

Basic Information

Program Name: Environmental Science

College: Science and Engineering

Department: Interdisciplinary Program spanning Biology, Chemistry, and Geography

Program Level (check all that apply)

- ☐ Associate's
- ☒ Bachelor's
- ☐ Undergraduate Certificate
- ☐ Master's
- ☐ Doctoral
- ☐ Graduate Certificate

Date Plan Submitted:

College Dean & email: Steve Addison, saddison@uca.edu

College Curriculum Committee Chairperson & Email:

Department Chairperson & email: Brent Hill (Biology, bhill@uca.edu), Kristen Dooley (Chemistry, kdooley@uca.edu), Steve O'Connell (Geography, soconnell@uca.edu)

Department Curriculum Committee Chairperson & email:

1. Introduction (identify college, unit, and degree programs)

- Purpose
The Environmental Science program at UCA is designed to offer students a comprehensive understanding of environmental issues and equip them with the skills to address these challenges using knowledge from both natural (biological, chemical, and physical sciences) and social (political, economic, and locational analysis) disciplines. This interdisciplinary approach prepares graduates for diverse career paths in federal and state government agencies, such as the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Geological Survey, State Game and Fish Commission, and State Department of Environmental Quality. Additionally, graduates are well-positioned for roles in private

industry, including consulting and corporate environmental compliance, as well as opportunities in postgraduate academic programs (MS, PhD, or law school).

Recognizing that environmental issues are complex and often require multifaceted solutions, the program integrates courses and expertise from various strong programs at UCA. By combining the best resources available, the Environmental Science program offers a robust curriculum. Furthermore, the program provides flexibility through three specialized tracks and a variety of elective options within each track, enabling students to tailor their education to align with their career goals and emphasize skills essential to their chosen professions.

- **Unit Mission Statement**
Our mission is to equip students with a comprehensive understanding of environmental science, preparing them with the knowledge and skills to address complex environmental challenges. Through interdisciplinary education integrating natural and social sciences, we promote critical thinking, innovation, and ethical responsibility. Our graduates emerge prepared to lead in the field of environmental science.

2. Student Outcomes

Outcome 1: Students will develop a strong understanding of career opportunities and skills required to be successful at the next stage of their professional development.

Outcome 2: Students feel they have developed necessary skills to be successful at the next stage of their professional development.

Outcome 3: Students will demonstrate an ability to critically evaluate literature and develop hypotheses and appropriate methods to test these hypotheses.

Outcome 4: Students will demonstrate proficiency in communicating environmental science information through oral presentations and writing.

3. Assessment Cycle

- Assessment Cycle will be determined with assistance from the Office of Assessment

4. Curriculum Map

Courses I: introduce R: reinforce E: emphasize	Outcome 1.	Outcome 2.	Outcome 3.			Outcome 4.
			Biology	Chemistry	Planning and Admin	
BIOL 1440 Principles of Biology I			I	I	I	

BIOL 1441 Principles of Biology II	I	I	I	I	I	
BIOL 2490 Genetics			R			
BIOL 3403 Ecology	E	E	E	E	E	I
BIOL 3360 Introduction to Marine Biology	R		R			
BIOL 3410 Vertebrate Zoology	R		R			
BIOL 4401 Invertebrate Zoology	R		R			
BIOL 4404 Plant Taxonomy	R		R			
BIOL 4406/5406 Mammalogy	R		R			
BIOL 4407/5407 Ornithology	R		R			
BIOL 4415 Evolution			R			
BIOL 4418 Biology of Reptiles	R		R			
BIOL 4430 Comparative Vertebrate Anatomy			R			
BIOL 4435 Animal Behavior	R	E	E			R
BIOL 4440 Entomology	R	E	R			
BIOL 4445 Biometry	R	E	R			E
BIOL 4450 Plant Ecophysiology	R		R			
BIOL 4455 Ichthyology	R	R	R			
BIOL 4460 Animal Physiology	R	R	R			R

BIOL 4461 Parasitology	R		R			
BIOL/ENVR 4465 Environmental Toxicology	R	R	E			R
BIOL 4470 Biology of Seed Plants	R		R			
CHEM 1450 College Chemistry I	I	I	I	I	I	
CHEM 1451 College Chemistry II				R		
CHEM 2401 Organic Chemistry I	R	R		R		
CHEM 3211 Organic Spectroscopy				R		
CHEM 3411 Organic Chemistry II				R		
CHEM 3150 Advanced Inorganic Laboratory	E	E		E		R
CHEM 3360 Intermediate Inorganic Chemistry		E		E		
CHEM 3520 Quantitative Analysis	R			R		
CHEM 4112 Seminar	R			R		
CHEM 4121 Biochemistry Lab	R			R		
CHEM 4152 Environmental Chemistry Lab	E			E		R
CHEM 4320				R		

Biochemistry I						
CHEM 4335 Biochemistry II				R		
CHEM 4351 Environmental Chemistry	R			E		E
CHEM 4380 Advanced Inorganic Chemistry	R			E		R
CHEM 4451 Advanced Analytical Chemistry	E			R		
CHEM 4450 Physical Chemistry I	R			R		
CHEM 4460 Physical Chemistry II	R			R		
GEOG 1315 Introduction to Physical Geography	I		I	I	I	
GEOG 1400 Earth Systems Science	I		I	I	I	
GEOG 2330 Quantitative Methods in Geography	R				R	
GEOG 2331 Research Methods in Geography	R				E	
GEOG 1315 Cartography	R				I	
GEOG 3301 Conservation of Natural Resources	E		E	E	E	R

GEOG 3303 Geographic Information Systems	E				R	
GEOG 3306 Remote Sensing and Image Interpretation	R				R	
GEOG 3307 Locational Analysis and Decision Making with GIS	R				R	
GEOG 3309 GIS in Practice: Environmental Applications	E				E	
GEOG 3318 Biogeography	R				R	
GEOG 3319 Geographic Field Techniques	R				R	
GEOG 3320 Field Studies	E				R	
GEOG 3325 Urban and Regional Planning	R				R	
GEOG 3333 Geography of Natural Hazards	R				R	
GEOG 3351 Weather and Climate	R				R	
GEOG 3361 Geography of	R				R	

Landforms						
GEOG 3371 Urban Geography	R				R	
GEOG 3399/3699 Internship in Geography					R	
GEOG 4304 Water Resources					R	
GEOG 4305 Soils					R	
GEOG 4308 Oceanography					R	
GEOG 4313 Recreation and Tourism					R	
GEOG 4330 Geographic Information Analysis					R	
GEOG 4160/4260/43 60 Special Problems in Geography					E	
ENVR 3410 Environmental Theory and Application	E		E	E	E	R
ENVR 4410 Environmental Practicum	E		E	E	E	E
HIST 4301 American Environmental History			R	R	R	R
PHIL4320 Applied Ethics						

(Environmental Ethics)						
PSCI 3320 Environmental Policy	R		R	R	R	R

5. Assessment Methods and Measures (Formative and Summative recommended)

Outcome 1: Students will develop a strong understanding of career opportunities and skills required to be successful at the next stage of their professional development.

Assessment Method: A survey will be used during students' sophomore and senior year in core classes. A Likert scale 1-5 (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree) will be utilized and for each question there will be space provided to state what courses helped develop each skill.

Outcome 2: Students feel they have developed necessary skills to be successful at the next stage of their professional development.

Assessment Method: A list of skills will be provided to students in a survey and they will rank each skill on a scale of 1-5 and provide examples of classes/assignments that helped develop each skill. This will be conducted in the senior capstone course (Environmental Practicum)

Outcome 3: Students will demonstrate an ability to critically evaluate literature associated with a specific track and develop hypotheses and appropriate methods to test these hypotheses within this track.

Assessment Method: Students research proposal will be assessed using established rubrics during the capstone Environmental Practicum course.

Outcome 4: Students will demonstrate proficiency in communicating environmental science information through oral presentations and writing.

Assessment Method: Evaluation of class presentations and the final written report will be conducted using established rubrics in the Environmental Practicum course.

6. Data Collection and Review

Outcome 1:

- Data will be collected every year
- Surveys will be given to both Sophomore and Senior students associated with required classes.
- The Benchmark will be an improvement in the understanding of career opportunities from their Sophomore to their Senior year with 70% of students scoring a 3 or higher on questions.
- The Environmental Science Director and the Environmental Science Directorate Committee will collect these data.

Outcome 2:

- Data will be collected annually in the Environmental Practicum course

- A survey will be utilized to assess student development in the program
- The benchmark for Outcome 2 will be both development of necessary skills within their track and development of interdisciplinary skills (noted by assessing skills they feel confident in that fall outside their stated track). 70% of students will score 3 or higher on questions.
- The instructors for the Environmental Practicum course will collect these data

Outcome 3:

- Data will be collected annually in the Environmental Practicum course
- Assessment of the research proposal using an established rubric
- The benchmark for Outcome 2 will be that 75% of the students score a 15 or higher on the overall points for the rubric.
- The instructors for the Environmental Practicum course will collect these data

Outcome 4:

- Data will be collected annually in the Environmental Practicum course
- Assessment of the final report and final presentation using an established rubric
- The benchmark for Outcome 3 will be that 75% of the students score a 15 or higher on the overall points for the rubric.
- The instructors for the Environmental Practicum course will collect these data

7. Participation in Assessment Process

- Who will participate in carrying out the assessment plan?
 - The Environmental Science Director and the Environmental Science Directorate Committee as well as instructors in the Environmental Practicum course
- What will be their specific role/s?
 - The core courses for Environmental Science will be responsible for the Sophomore data in Outcome 1 while the instructors in Environmental Practicum will collect data for Outcomes 1, 2, 3, and 4.

8. Data Analysis

- How will the data and findings be shared with faculty?
 - The data will be compiled to share every three years with Environmental Science Faculty Affiliates as well as respective department chairs (Biology, Chemistry, Geography)
- Who was involved in analyzing the results?
 - The Environmental Science Director and the Environmental Science Directorate Committee
- How are results aligned to outcomes and benchmarks?
 - The results will be measured against the benchmarks. For any outcome not meeting a benchmark the results will be used to further improve the program as outlined in 9.

9. Plan for Using Assessment Results to Improve Program

- Any outcome not meeting the benchmark will be evaluated and the committee will meet to determine subsequent steps. This will vary based on the Outcome but will involve discussions with faculty teaching core courses as well as reflection on course evaluations and student surveys. Corrective measures will be initiated within a year of results.

10. What are the plans to evaluate students' post-graduate success?

Post-graduate success will be measured by completed alumni surveys every five years. This timeline should provide ample time between surveys to reduce “burn-out” of alum but often enough to keep our eye on any trends.

- Data will be collected every five year through alumni surveys
- The percentage of alumni employed within the field of environmental science will be calculated
- The benchmark will be 75% of majors employed in the environmental science field
- The Environmental Science Director and the Environmental Science Directorate Committee will collect these data

11. What are the plans to evaluate teaching effectiveness?

- Teaching effectiveness is determined for the major as a whole, via achieving the above benchmarks related directly to student learning.

12. Appendices-Required Curriculum Maps by Program, Assessment Tools (examples: Rubrics, Surveys, Tests, etc.), any other important materials/documentation

13. Submit Assessment Plan

- Send completed form electronically to assessment@uca.edu

For questions or concerns please contact:
Dr. Jacob Held 450-5307 jmhheld@uca.edu
Alyson McEntire 450-5086 amcentire@uca.edu