### Authorization To Offer Non-Degree Extension Credit Course Through Extended Studies

1. Desired Term: **Spring 2008**  
   Year of implementation: **2008**

2a. Course abbreviation and Number:  
   EDST E1012

2b. Abbreviated Title:  
   (No more than 25 characters, including spaces)  
   **Rainforests: Endangered Ecosystems**

4. Number of Units: 3

5. Billing Units: 0 ($80)

6. Allowed Student Levels:  
   UG X GR X EE X  
   (Default is to check all three levels)

7. Grading Method:  
   - N Normal (N) (Default is Letter Grade +/-, Students may request Credit/No Credit)  
   - Normal Plus Report-in-Progress (NP) (As for Normal; also allows Report-in-Progress)  
   - Credit/No Credit Only (C)  
   - Credit/No Credit or Report-in-Progress Only (CP)

8. Mode of Instruction:  
   (See pages 17-23 at [http://www.calstate.edu/clm/data-elements/APDB-Transaction-DED-SectionV.pdf](http://www.calstate.edu/clm/data-elements/APDB-Transaction-DED-SectionV.pdf) for definitions of the Course Classification Numbers)

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<th>Type of Instruction</th>
<th>Number of Credit Units</th>
<th>Instructional Mode (Course Classification Number)</th>
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<td>Lecture</td>
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9. Attributes: Course Requires Consent for Enrollment?  
   Yes X No
   
   - Faculty
   - Credential Analyst
   - Dean
   - Program/Department - Director/Chair

   Prerequisites:  
   Co-requisites:

10. Does this course impact other discipline(s)?  
    (If there is any uncertainty as to whether a particular discipline is affected, check "yes" and obtain signature)  
    Yes X No
    
    If yes, obtain signature(s). Any objections should be stated in writing and attached to this form.

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**Important: Please Complete**

1. Instructor: Kathy Norman

2. Extension Course Proposal Form (attached)

**SIGNATURES: (COLLEGE LEVEL)**

- Kathy Norman  
  Date: 2/4/08

**SIGNATURES: (UNIVERSITY LEVEL)**

- [Signature]  
  Date: 2/9/08

- [Signature]  
  Date: 2/4/08

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3. Dean of Extended Studies (or Designee)  
   Date: 2/9/08

4. Vice President for Academic Affairs (or Designee)  
   Date: 2/4/08
Rainforests: Endangered Ecosystems Syllabus

Faculty Information

Faculty Name: Amy Strong

Address: 1845 Fairmount – Box 32; Wichita, KS 67260--0032

Phone: 316.978.6503

Email Address: amy.strong@wichita.edu

Course Title: Rainforests: Endangered Ecosystems

Course Description: Over the course of five weeks, students will read a variety of course content materials and perform weekly assignments, including one to two discussion board activities per week. These activities will comprise approximately 45 hours of "seat time" of student time. Students taking the course for 3 graduate credits will also complete a ten to fifteen page Action Research Paper.

This course explores the nature of rainforests and their role in the biosphere. It investigates the flora, fauna, and human populations that inhabit rainforests, including how they interact with each other and the abiotic factors of the ecosystem, their adaptations, and factors affecting their evolution. Students examine the importance of rainforests and the threats directed at them. They also take a virtual trip through Olympic National Park's Hoh Rainforest to show the connections between temperate and tropical rainforests.

Course Delivery: Critical to the professional-development experience of teachers today is learning to function effectively in an online learning environment, one that is destined to expand in the future. Rainforests – Endangered Ecosystems is an online course completed in five weeks, with an additional one-week grace period for submitting assignments. Although students may work on assignments offline, all course content, links to supplementary information, interaction among students in the class, class discussions, assessments, submission of assignments, and interaction with the instructor are carried out online, through email and the course site. This online format is designed for educators who need access to professional development on a flexible schedule and who are in different locations worldwide. Not all participants in this course will earn college credit; some are earning CEUs or auditing. Students earning college credit are required to participate in advanced discussions and complete all assignments.

Course Objectives/Outcomes: Students will be exposed to current issues pertinent to rainforest ecology and conservation efforts. Students will be able to differentiate between temperate and tropical rainforests; recognize and understand consequences of interactions between biotic and abiotic characteristics; cite examples of the biodiversity of rainforests and the many adaptations of plants and animals; list the important contributions of rainforests and the products that come from rainforests; and examine causes of rainforest destruction and factors that continue to threaten the rainforests.

Lesson Plans

Topic One: The Nature of Rainforests
The course begins with an introduction to the nature of rainforests, focusing on their unique ecological assets. Students learn that tropical and temperate rainforests share a common stratified structure and certain abiotic factors but differ in biotic factors.

Major Ideas:
A. Is It a Jungle Out There? Describes the characteristics that are shared among different kinds of rainforests and those that differ.
B. Tropical Rainforest Hotel. Describes the vertically stratified structure of a tropical rainforest.
C. Temperate Rainforest Hotel. Describes the structure of the temperate rainforest, in contrast to a tropical rainforest.
D. Knock, Knock. Who's There? Describes the great diversity of living things residing in a rainforest.
E. Head, Heart, and Hands. Introduces the concept that science and society must work together in understanding and caring for rainforests.

Topic One Assignments:
   a) Read the course syllabus.
   b) Build a homepage and place a self-introduction on the discussion board.
   c) Read Topic One content and answer the focus questions. Submit answers to instructor via email. This will be counted as participation points.
   d) Participate in Discussion Boards; 1) for class content and 2) for additional reading assignment.
   e) Begin to select an area of interest of your choice for the long term project. The selection must be in consultation with your instructor. The project can cover any content area of the rainforest that you have interest in and should end with the submission of a suitable project during the final week of the course. Topics must be submitted to instructor by the end of the second week of the course.
   f) Students seeking graduate credit will consult with the instructor and select a project suitable for a 10-15 page Action Research Paper. The investigative project must be decided upon and receive the instructor’s approval by the end of the second week of the course.
   g) Take the Topic One quiz
   h) Declare the nature of the credit sought – Graduate, CEU, or Audit.

Topic Two: Evolution in Overdrive
Students explore the enormous biodiversity of rainforests and the many adaptations of its plants and animals. The content focuses on rapid reproduction that generates variation; rainforests support many varied niches; and plants and animals living within rainforests show many adaptations necessary for survival.

Major Ideas:
   A. Survival of the Fittest. Explains how rainforest diversity becomes so great and describes niches filled by organisms.
   B. Leaf Well Enough Alone. Describes how variation in leaf structure makes plants successfully adaptive to a rainforest environment.
   C. Water Wars. Explains how plants adaptively handle the large amounts of water in a rainforest.
   D. The Creative Zoo. Describes many successful adaptations of rainforest animals living in a highly competitive environment.

Topic Two Assignments:
   a) Read Topic Two content and answer the focus questions. Submit answers to instructor via email. This will be counted as participation points.
   b) Participate in Discussion Boards; 1) for class content and 2) for additional reading assignment.
   c) Submit topic for Long Term Investigation Project. Continue to work on project.
   d) Submit topic for Action Research Paper. Continue to work on paper.
   e) Take the Topic Two quiz.

Topic Three: The Importance of Rainforests
Course content explores the many important contributions of rainforests. Students will study the role of rainforests in affecting the atmosphere and controlling climate; learn how the unique soil
serves the rainforest and surrounding areas; and investigate the array of health products and other useful items provided by the rainforest.

Major Ideas:
A. Rainforests Control Earth’s Climate. Explains how rainforests create and balance Earth’s atmosphere, which in turn affects global climates.
B. Lungs of the Planet. Suggests how rainforests may affect the oxygen and carbon dioxide content of the global atmosphere.
C. Down and Dirty. Describes the nature of rainforest soil, how it supports biomass, and how it affects water control.
D. The Rainforest Pharmacy. Describes the many contributions of rainforest plants and animals to the health of all organisms.
E. The Rainforest Café and Gift Shop. Describes some of the desirable foods, woods, and sundries provided by the rainforest for human use.

Topic Three Assignments:
1) Read Topic Three content and answer the focus questions. Submit answers to instructor via email. This will be counted as participation points.
2) Participate in Discussion Boards: 1) for class content and 2) for project progress.
3) Work on Long Term Investigation Project.
5) Take the Topic Three quiz.

Topic Four: A Vanishing Ecosystem

Students will examine activities that have caused rainforest destruction and continue to threaten rainforests. Content focuses on rainforest ecosystems that are rapidly disappearing as needs and desires of modern living conflict with natural process. Topical sections present several suggestions to slow the demise of rainforests.

Major Ideas:
A. Going, Going...Almost Gone. Compares the extent of rainforest in the past with the present; introduces some causes of rainforest destruction.
B. Paper Mills and Power Plants. Demonstrates how needs of particularly affluent societies affect the decline of rainforests.
C. On the Cutting Edge. Describes the effects of deforestation on rainforest.
D. Exotic Invaders. Describes effects of invasive species of plants and animals on the rainforest ecosystem.
E. Nature Reserves. Describes the role of reserves as attempts to help rainforests and questions the results.
F. Destroying Culture. Describes the role and fate of indigenous rainforest people.

Topic Four Assignments:
1) Read Topic Four content and answer the focus questions. Submit answers to instructor via email. This will be counted as participation points.
2) Participate in Discussion Board for 1) class content and 2) for project progress.
3) Work on Long Term Investigation Project.
5) Take the Topic Four quiz.

Topic Five: The Olympic, Our Temperate Treasure

Students will take a virtual trip through Olympic National Park’s Hoh Rainforest, connecting the tropical rainforest with a temperate rainforest in the state of Washington. Students will learn the answer to such questions as: What caused this rainforest to be formed in this particular location? How do energy and matter flow through this rainforest? Who are the inhabitants of this rainforest and how do they interact with each other? How is this rainforest like and different from its tropical counterparts?

Major Ideas.
A. Location Is Everything. Describes the dynamic processes that created the foundation for a rainforest.
B. Energy Flow: Gain What You Lose. Emphasizes that a healthy ecosystem requires a constant source of energy; describes the flow of energy through this rainforest; and challenges you to measure and compare the angle of the Sun in one's own location with that in Olympic National Park's Hoh Rainforest.
C. Matter, the Stuff of Life. Discusses the cycles of matter in the rainforest and the relationship to energy flow.
D. Green Plants, the Great Transformers. Describes a variety of plants found in the Hoh temperate rainforest, a few of which were important to indigenous people; and introduces the cryptic "cryptograms" and their role in transforming solar energy into chemical energy.
E. The Forest's Silent Heroes. It's hard to think of fungi as "silent heroes"? They may not all be attractive or even noticeable, but what would life be like without them? Find out!
F. Will the Circle Be Unbroken? Closes the week by announcing that rainforests will change with or without people; challenges participant to predict what changes will occur.

Topic Five Assignments:
a) Read Topic Five content and answer the focus questions. Submit answers to instructor via email. This will be counted as participation points.
b) Participate in Discussion Boards: 1) for class content and 2) class comments.
c) Complete Long Term Investigation Project.
e) Take the Topic Five quiz.
f) Complete the JASON Course Survey.

Texts (required readings): Course Content found in Blackboard
Bibliography: Suggested and/or required readings. Please note that students do not need to purchase any books for this course. Selected additional readings will be provided.
Books may be checked out of local libraries if desired.
  a) A Neotropical Companion, John Kricher and Mark J. Plotkin
  b) Diversity and the Tropical Rainforest, John Terborgh, Scientific American Library No. 38
  c) The Economics of Environmental Degradation: Tragedy for the Commons?, Timothy M. Swanson, Editor
  e) The Olympic Rain Forest – An Ecological Web, Ruth Kirk and Jerry Franklin, University of Washington Press
  f) Cedar, Hilary Stewart, University of Washington Press
  g) Visualize Olympic, http://www.nps.gov/olymp animate.htm
  h) The Tragedy of the Commons, Garrett Hardin, Science, http://www.sciencemag.org/cgi/content/full/162/3859/1243

Student Evaluation Process:

Students are assessed through weekly on-line discussions, a series of focus questions, quizzes, and a final project. Not all students seek college credit; some earn CEUs or audit. Students earning college credit are required to participate in advanced discussions and complete all assignments. Students taking the course for 3 graduate credits will complete a 10 - 15 page Action Research Paper. The Long Term Project, a lesson plan or PowerPoint presentation on a topic, may be a precursor to the Action Research Paper and the same content may be developed further for the paper.

Students may earn 40 points through discussions and focus questions, 15 points on quizzes, 10 points on completion of a home page introduction and a project topic

Rainforests Edited Syllabus 2007
agreement, 15 points on the Long Term Project, and 20 points on the Action Research Paper.

* Students not taking the course for graduate credit do not have to complete the Research Paper and must obtain at least 70 points to pass the course

* Students taking the course for graduate credit will be graded according to the Plus/Minus Grading Scale:

- A+ 97-100
- A 94-96.99
- A- 90-93.99
- B+ 87-89.99
- B 84-86.99
- B- 80-83.99
- C+ 77-79.99
- C 74-76.99
- C- 70-73.99
- D 50-69.99
- F < 50
QUALIFICATIONS

Highly trained professional in the area of education seeks a position with a focus on science education, content development and/or professional development. Demonstrates strong presentation abilities including experience with videoconferencing and distance learning technology. Highly organized and has a track record for meeting timelines and exceeding expectations. Self-motivated innovator skilled in problem resolution and team work.

PROFESSIONAL EXPERIENCE

Wichita State University, Wichita, Kansas
Fairmount Center for Science and Mathematics Education
Assistant Director
- Present science education material in K-12 classrooms both in-person and via distance learning technology
- Science kit development and curriculum writing
- Director; Kansas Junior Academy of Science
- Program Manager; KS JASON Project
- Assistant Director; Kansas Science Olympiad
- Assistant; National Science Olympiad, 2006-2007 school year

Wichita State University, Wichita, Kansas
Department of Biological Sciences
Lecturer
- Prepare and present laboratory classes in biology, ecology, anatomy & physiology and ichthyology
- Prepare and present lecture material for general biology classes
- Integration of multi-media, hands-on learning methods to improve learning of participants with a lack of science background knowledge

JASON Foundation for Education, Ashburn, Virginia
JASON Lead Trainer
- Present professional development materials to administrators and educators
- Present curricular materials at annual JASON conference
- Present curriculum activities at national and regional conferences
- Act as online instructor for JASON Academy Rainforest class
- Program manager for Kauffman Foundation grant project

Cowley County Community College, Arkansas City, Kansas
Lecturer
- Prepare and present laboratory and lecture material for anatomy and physiology

Goddard High School, Goddard, Kansas
Science Educator
- Prepare and present classes in freshman science, biology and anatomy and physiology
- Prepare and present materials for QPA and In-service trainings
- Member of QPA Profile Committee

National Biological Survey, Auburn University, Alabama
Fisheries Biologist
- Physical and biotic field data collection on Tallapoosa River Study sites
PROFESSIONAL AFFILIATIONS

**Member**  Kansas Academy of Sciences (KAS)  1999–Present
**Member**  Kansas Association of Teachers of Science (KATS)  1999–Present
**Member**  Kansas Association of Middle Level Educators (KAMLE)  2001–Present
**Member**  National Science Teachers Association (NSTA)  2001–Present

PUBLICATIONS


EDUCATION AND CERTIFICATIONS

1999  Kansas Secondary Science Certification; Biology, Chemistry and General Science
1997  Master’s of Biological Sciences; Wichita State University

Research Topic: Modification of the Index of Biotic Integrity for the Little Arkansas River Basin, Kansas.

ADDITIONAL ACTIVITIES

Selection Committee, Dept. of Curriculum and Instruction WSU College of Education  2006-2007
Selection Committee, WSU Fairmount Center for Science and Mathematics  2006
Communication Committee, JASON Foundation for Education  2005
Selection Committee, WSU Fairmount Center for Science and Mathematics  2004
Selection Committee, Kansas Teacher of the Year  2003-2004
Volunteer judge for local science fairs  2001-2006
Assisted in project evaluating impacts on Rio Negro River, Brazil  2000
Research assistant for sea turtle project, Florida  1992
Volunteer with Florida Game and Freshwater Fish Commission  1991
Project involving triploid grass carp as aquatic weed control agent, Florida  1991-1993
Tutor, McCandless Grade School, Kansas  1989