Murray State University
COMMON SYLLABUS

DEPARTMENT: ECE    COURSE NUMBER: EDU 667    CREDIT HOURS: 3

I. TITLE: Environmental Education in Austria, Germany, and Switzerland

II. CATALOG DESCRIPTION: Residential study of the mathematical, scientific, social studies, language arts, fine arts, and health connections to the environment in Austria, Germany, and Switzerland. This class is offered in conjunction with the Kentucky Institute for International Studies and takes place in Bregenz, Austria (field experiences required). Prerequisites: Admission to the graduate program as a regular or visiting student or permission of instructor.

III. PURPOSES: By using the Environment as an Integrating Context, connections will be made to the subjects of mathematics, science, social studies, language arts, the fine arts, and health. Mathematical, scientific, and social studies collection procedures will be used to compare and contrast the forest, river/stream, and human habitat in Austria, Germany, and Switzerland.

IV. COURSE OBJECTIVES: The behaviors indicated below are understood to be reflective of but not limited to those advocated by the Kentucky Education Reform Act guidelines. Curriculum connections will be made with KERA Initiatives: Kentucky Learner Goals and Academic Expectations, Program of Studies, and Core Content. Following each objective, and enclosed in parentheses, are numbers which reference a number of connections to State and National Standards, that appear in the following order: (1) Kentucky’s Academic Expectations; (2) Experienced Teacher Standards; (3) Kentucky Learner Goals; (4) North American Association for Environmental Education’s Standards (NAAEE). The North American Association for Environmental Education’s Guidelines for the Initial Preparation of Environmental Educators also appear on the National Council for the Accreditation of Teacher Education website since NAAEE is a member specialty group.

In addition, all societies that represent academic disciplines require interdisciplinary teaching and learning. Within this context, this course will provide continuous opportunities to see how the environment is an interdisciplinary context from which all subjects can be taught and learned. All standards listed in no way represent all of the connections to national standards but serve as an example of the interconnectedness between not only the expectations for the continuing preparation of teachers, but also the relationship of mathematics, science, and other school subjects to the study of the environment. Kentucky’s Teacher Professional Standards Board also recognizes the value of studying environmental education and the interconnections it brings to the curriculum.

As result of participation in this course, students will:

1. Acquire, reinforce, and/or extend the skills of assessing environmental issues mathematical, scientific and other tools in the arts, humanities, sciences and social sciences and to express this in visual, auditory, and other forms of communication (Academic Expectation 1-10, 13, 18-19, 28, 30; ETS 1-4, 7-9; KY Learner Goal 1-2, 5-6; NAAEE Standards 1-5)

2. Be able to make connections between mathematical, scientific, and social problem solving skills to make informed decisions about environmental issues (Academic Expectation 1-10, 13, 18-19, 28, 30; ETS 1-4, 7-10; KY Learner Goal 1-2, 5; NAAEE 1-5)

3. Compare and contrast the use of natural resources in the European Union (EU) with one’s own country and community; (Academic Expectation 1-10, 13, 18-19, 28, 30; ETS 1-4, 7-10; KY Learner Goal 1-2, 5-6; NAAEE 1-4)

4. Compare the concept of sustainability as they relate to practice in Austria, Germany, and Switzerland (Academic Expectations 2-5, 7, 10-13; ETS 1-4, 7-10; KY Learner Goal 1-2, 5-6; NAAEE 1-3, 4)

5. Prepare a list of concept, skill, and curricular connections that can be made between mathematics, science, social studies, language arts, and other subjects and the concepts of sustainability and its relation to ecosystems (Academic Expectation 1-10, 13, 18-19, 28, 30; ETS 1-4, 8-9; KY Learner Goal 1,3, 6; NAAEE 1-5)

6. Develop and apply techniques to provide a context for mathematics, science, social studies, language arts, the fine arts, and health so students may use the environment as a topic to conjecture, verify, think hypothetically, comprehend cause and effect, generalize, and abstract ³ (Academic Expectation 1-10, 13, 18-19, 28, 30; ETS 2-4, 8-9; KY Learner Goal 1, 3, 4, 6, 10, 11, 12; NAAEE 1-5)

V. CONTENT OUTLINE:
A. Assessing the Environment (Assessment tools that require the use of multiple intelligences and reflection)
B. Making Informed Decisions about the Environment (Interdisciplinary use of Mathematics, Science, Social Studies, Language Arts, Fine Arts, and Humanities)
C. Concept of Natural, Renewable, and Nonrenewable Resources (Using Observation, Inquiry, Inferences and Multiple Data Sources)
D. Sustainability and Economics (Using Data to Project Impacts on Plant and Animal Life)
E. Land Fills and Recycling (Using data to compare and contrast need to address this issue in a culture that uses 30 percent of the world’s resources and yet represents less than 3 percent of the world’s population. What does this mean to our throw away society in terms of sheer volume of need for landfills at the current rate of use?)
F. Energy Generation, Use and Consumption: Is there an energy crisis and what statistical data is there to prove or disprove this? What mathematical models can we use to predict energy use in the future comparing U.S. to many European countries? What are they doing to meet continued need for energy and how will this impact the air, land, and water?

G. Schools and the Environment: What are schools doing for projects in the use of the environment as an integrating context? How do they all integrate all school subjects in these eco-schools? How are these schools contributing to sustainability and energy self-sufficiency?

H. Societal Values and Resource use: How much of the world’s natural resources do the European countries use? What values support this in these cultures and how are they different from the United States?

I. Change Over Time: Over the last 40 years what have the Europeans done to impact the environment positively? What can we learn from them and what can we do to change our environment?

J. Comparing Recycling/Reusing at Home and Abroad: What are the similarities and differences between the EU and the US looking at the recycling process? What is done with the trash and how does that compare with the U.S. For instance, 85 percent of trash going to the landfills in Austria is recycled and reused. Is there a discrepancy between the EU and the US? If there were a difference then what would account for this difference? What does this mean in relation to landfill use in our respective countries?

VI. INSTRUCTIONAL ACTIVITIES:
Students will be engaged in a number of hands-on environmental activities throughout the two-week class that will include the use of mathematics, science, social studies, language arts, the fine arts, and health. Connections will be made with these disciplines as it relates to problem solving necessary to solve and resolve environment issues and problems associated with concepts such as carrying capacity and limiting factors.

Readings will be assigned and/or self selected materials to assist in generating pertinent questions and concerns that would evolve into the use of mathematics, science, and other subjects to respond in an informed way.

Resource person will be used to connect the current state of the European environment with the tools necessary to make this assessment.

Active and positive participation in large and small group discussion and presentation will take place.

Excursions will take place throughout the two-week period to provide data, information, and observations to allow participants to draw conclusions about the viability of sustainable practices and to allow them to compare these with those in their own cities and municipalities.

Demonstration of acceptable performance on writing and data collection activities will be culminated with a final project that will provide an in-depth look at how mathematics, science, and other subjects can be used as tools in the classroom to address the environment and environmental questions/issues.

Each participant will provide ways in which they will be able to collaborate with their colleagues and resource persons in the U.S. to explore ways of using the environment as
an integrating context and thus a way to improve the learning and use of mathematics, science, and other disciplines.4

**Activities by Order in Calendar**

Introduction/ Discuss Syllabus
Looking for patterns of use of renewable and nonrenewable resources
Historical and current look at buildings and patterns of living (geometry, measurements, patterning, estimating)
Business and Industry – patterns of use and consumption of energy in the process of manufacturing (Wolford Company)
Waste, Waste Patterns – Häusle and profitability
Schools: Their Curriculum, Their Buildings: What does this have to do with the disciplines/TMSS/the environment? - Visit the Eco-school in Mäder, Vorarlberg
Biosphere: What is it and what does this have to do with the environment school and school subjects? – Biosphere Park Grosses Walsertal
Bio – Visit to a Bio – PferdenBauernhof in Bregenzerwald
Käsestraße – Visit to see the production of cheese and “change over time”
Electricity and Power Generation – Silvretta
Forest habitat – Walk in forest to Gebhartsberg
Architecture and Historical valuing – Vorarlberger Landes-Bibliotek
Measuring the Environment – Provincial Institute of Environmental Studies of Bregenz
Comparison of German Practices – Lindau, Germany, home of the annual meeting of the Nobel Prize Laureates
Farming Practices and the Impact Upon the Environment – i.e. erosion and its impact on water quality – Vetterhof

**VII. FIELD, CLINICAL AND/OR LABORATORY EXPERIENCES:** Students are required to attend all field and in-class sessions during the week. All field trips will be made within 150 km of Bregenz, Austria.

**VIII. RESOURCES:**
A number of resource persons will assist in the program to provide a number of opportunities to observe, interact, collect data, and make inferences. The following persons are resources:

Ms. Lorna Forster – Übersetzer fur Silvretta
Mag. Tomas Feurstein – Vorarlberger Landes-Bibliotek
Ing. Martin Fitz, Vice President – Wolford Ag., Bregenz
Mr. Oswald Hagen, Vice President – Wolford Ag., Bregenz
M. Markus Linhart – Bergermeister, Bregenz
Mr. Alois Metzler – Kundenbetreuung, Häusle
Dr. Josef Metzler, CEO – Wolford Ag., Bregenz
Mag. Bertram Meusburger – Umwelt um Schule

4 Ibid.
IX. GRADING PROCEDURES:
The grade in the class is dependent on three parts of the class:

A. The virtual component – students will be asked to read and respond to a number of virtual experiences sent to them via e-mail or on a list serve. This will count for 25 percent of the final grade for the class.
   Each student will be assessed on the following criteria:
   A = Complete, reflective, and well-stated positions that are constructed in an easily read and understood document
   B = Nearly complete and reflective well-stated positions that are constructed in an easily read and understood document
   C = Incomplete or poorly stated positions. The construction of the document is grammatically incorrect with spelling errors throughout.

B. The Field Experience – students will be asked to attend classes and field trips during the residential experience in Bregenz, Austria. Participation in all class discussion and assignments will be worth 50 percent of the class final grade with assessment being made on the basis of how well the student is able to meet the following criteria
   Is the student prepared for the residential experience with all necessary materials and equipment?
   Is the student actively engaged in teaching and learning experiences during the residential component?
   Does the student demonstrate a knowledge of developing instructional experiences in the classroom, outdoor classroom and in residential situations for students?
   Is the student able to connect environmental education to Kentucky’s Program of studies?
   Does the student successfully articulate the interdisciplinary nature of environmental education and environment as an integrating context?
   Can the student successfully make use of environmental education terminology and place this contextually?
   Is the student capable of visualizing and articulating environmental education experiences that connect multiple disciplines?
   Can the student communicate how to construct environmental education activities that are age appropriate, hands-on, and that model the learning cycle?
C. Final project – students will prepare a final product to be submitted at the conclusion of the summer, three weeks after the return to the United States. Each person will choose the project that best meets their professional needs and the course objectives and goals remembering that the concept of connecting mathematics, science, social studies, language arts, the fine arts, and health using the environment as an integrating context is essential and necessary. Therefore, the students should be able to go back to their classroom and apply what was learned by using the environment to connect mathematics, science, and other subjects into their current curriculum.

The students should also be able to discern, recognize, and make use of a number of resources to provide support for colleagues in their school by using the network gained as a result of the class. This assignment is worth 25 percent of the final grade for the class.

Assignments will be graded on the following basis:

A = Clearly outstanding, making numerous connections to the classroom and how to integrate the use of mathematics and science in the classroom. Some innovative and creative ideas suggested. Also shows specific examples of how to connect mathematical and scientific content into the ongoing topics taught during the year. Connections on how to involve colleagues are also well spelled out.
B = Good suggestions are made on how to connect the environment to its use in your classroom with multiple disciplines articulated.
C = Performance that clearly is below graduate performance.

X. ATTENDANCE POLICY: This course will abide by the current attendance policy in the current MSU Graduate Bulletin.

XI. ACADEMIC HONESTY POLICY: This course will abide by the current academic honesty policy in the current MSU Graduate Bulletin.

XII. TEXT AND REFERENCES:

HARDCOPY


INTERNET

XIII. PREREQUISITES: Admission to the graduate program as a regular or visiting student or permission of instructor

XIV. STATEMENT OF AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY:
Murray State University does not discriminate on the basis of race, color, national origin, sex, religion, marital status, age, or disability in employment, admission, or the provision of services, educational programs and activities, and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities an equal opportunity to participate in all programs and activities. For information regarding nondiscrimination policies contact the Office of Equal Opportunity, 270-809-3155.