

**P1.13 EXAMINING THE NEXUS OF ENVIRONMENTAL EFFECTS, GEOPOLITICAL INSTABILITY,  
AND NATIONAL SECURITY: THE ENVIRONMENTAL SECURITY COURSE  
AT EMBRY-RIDDLE AERONAUTICAL UNIVERSITY**

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## 1. INTRODUCTION

In the summer of 2007, the authors offered an experimental course entitled Environmental Security (ES) for the first time at Embry-Riddle Aeronautical University's (ERAU) Daytona Beach campus<sup>1</sup>. Our motivation for offering the course was twofold:

- 1) A desire to learn more about the interrelationships between environmental phenomena, their effects on vulnerable populations, and the potential security impacts that result.
- 2) Our intention to develop a joint research program between ERAU's Applied Meteorology and Homeland Security (HS) programs, in which ES could play a prominent role.

Additional motivation was provided by the appearance of myriad stories in the media about climate change, energy and food security, and natural disasters around the world. All of these events are taking place as the U.S. continues to prosecute the Global War On Terrorism, and has just completed an historic presidential election.

For our purposes, we adapted the definition of ES from King (2000), p. 17:

*Environmental Security is a process for effectively responding to changing environmental conditions that have the potential to reduce peace and stability in the world and thus affect US national security.*

In this definition, we define "environment" as encompassing the atmosphere, land, and oceans and water bodies. King's definition puts ES in terms of national security interests, and spans decision-making levels from "tactical" through the national strategy/policymaking levels.

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1 – There is a course entitled "Environment and Security" offered at ERAU's Prescott, AZ campus. We consulted with the course instructor, Dr. Phil Jones, while building this version.

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Our initial approach was to develop the course, offer it to the students, and gather feedback as to whether the course should be added to the ERAU undergraduate curriculum. We are pleased to report that since offering the course for a second time in Fall Semester 2008, it has been added to the Applied Meteorology curriculum as a 400-level elective, and will be added to the HS program within the next year.

## 2. ENVIRONMENTAL SECURITY AS AN ACADEMIC DISCIPLINE

Environmental Security as a discipline has been around for at least 30 years (Myers, 2004), and has gone through periods of both active and waning research interest, largely driven by world events and policymaking agendas in both Washington, D.C. and Europe. It was the end of the Cold War that first brought attention to ES in the U.S. national policy arena, as part of an ongoing debate within the U.S. policy community over whether we should broaden our view of security to include non-traditional considerations such as the environment. The pro-ES argument was that an increasingly complex, multi-polar world could only be understood by incorporating environmental problems and other non-traditional areas (e.g., social, economic) into a *redefined concept of security*. The anti-ES argument acknowledged that while environmental, health, and socio-economic concerns have important connections to security, these issues *should not be characterized as security concerns*. The two sides to this debate have been summarized nicely by both Dabelko and Simmons (1997) and Mansfield (2004). Peak interest in ES in the U.S. policy community occurred in the late 1990's when a multi-agency effort to incorporate aspects of environmental security into policy was undertaken by the U.S. Departments of Defense, State, and Energy.

After 9-11, U.S. security policy shifted toward a military focus, primarily directed at the Global War On Terrorism (GWOT). As a result, ES has not been given nearly the same level of emphasis as it had seen prior to the terrorist attacks. In our ES course we make an argument for a resurgence of ES based on a need to eventually switch from a military-heavy, "hot war" GWOT strategy, to a more preventative one, and the growing reality that climate change will present new and challenging security challenges to the nations of the world that must be addressed proactively.

### 3. ERAU-DAYTONA'S ES COURSE

The overall course goals can be summarized as follows:

1. Develop a working definition for environmental security that will be applied throughout the course.
2. Recognize the growing role that the natural environment plays in contributing to or causing destabilization within a country or within a region, and how this destabilization can lead to security concerns for the U.S. and its allies.
3. Become familiar with the destabilizing influences of environmental changes, such as reducing access to fresh water, impairing food production, contributing to or causing health catastrophes, land losses, flooding, and major population displacement.
4. Become familiar with the security implications of environmental changes, such as greater potential for failed states and growth of terrorism, mass migrations, and potential conflicts over limited resources within or between countries.

The ERAU-Daytona version of ES begins with a "first principles" look at topics in environmental science and environmental health, such as food production, population dynamics, and laws of supply and demand. It continues with an introduction to meteorology and climatology that focuses on "natural disaster" phenomena, from single "events" such as tropical cyclones, severe thunderstorm outbreaks, and heat waves, to longer-term climatic anomalies such as prolonged droughts, floods, heat, and cold. This introductory material is necessary to build the foundation for examining effects and impacts on vulnerable populations from these various phenomena.

The next step is to introduce the students to national security strategy and policymaking using a conceptual model developed by the U.S. Army War College (Bartholomees, 2006). At this point, the students are ready to begin exploring topics in ES, using the working definition of ES discussed above and the introductory topics just described. In this phase of the course, we explore how development and execution of U.S. domestic and foreign policy, and ultimately, U.S. national security interests, can be impacted by emerging threats to nations from environmental health issues, infrastructure vulnerabilities, and natural resource shortages caused by rapid industrialization, population growth, and urbanization in less developed countries. In a seminar format, students and faculty cover a variety of readings and discuss their conclusions. Students

are given the opportunity to lead class discussions on assigned readings, and present a final project consisting of a class presentation and term paper on an ES topic chosen during the semester.

### 4. NEW ADDITIONS TO THE COURSE THIS SEMESTER

This semester we gave the students a short writing assignment at the beginning of the course to choose a country, describe its general characteristics in terms of government, population demographics, and economics, and describe specific environment and security challenges facing that nation. We then conducted a seminar in which each student described his/her chosen country, and we tabulated the characteristics on a white board by geographic region. Upon completing the region, we examined common challenges facing those nations, and upon completing all the regions, we compiled an overall list of international environmental and security challenges. The list of nations examined by this semester's class and the corresponding list of common environmental and security challenges is listed in Table 1 below.

Table 1. Regional ES issues identified by the class.

Region	Countries examined	Environment and Security problems
Central/South America	Bahamas, Mexico, Costa Rica, Colombia, Bolivia, Chile	Drug trade; deforestation; border security and disputes; climatic variability and vulnerability
Europe/North Africa	Ireland, Germany, Norway, Italy, Armenia, Georgia, Egypt	Border security and disputes; population growth and migration; air/water/soil pollution; industrial European countries as net energy importers
Africa	Mozambique	Internal security issues left over from civil war; lack of infrastructure; drugs; human trafficking, HIV/AIDS, other diseases; desertification; lack of clean water; overfishing
Asia	Afghanistan, China, Burma, South Korea	Border disputes; pollution; threat of military confrontation; vulnerability to natural disasters; mass migration and poverty

What is very interesting about the results of Table 1 is that although the students were allowed to pick the countries they studied, this randomly developed, cursory analysis identified a number of significant international environmental and security issues (e.g., mass migration, pollution, border disputes, drug trafficking). In fact, this introductory exercise led to at least one subsequent student final project that examined some of these problems in more detail—the environmental impacts of drug crop agriculture in South America and its connectivity to regional and homeland security. Next time the course is offered, we will try assigning countries from different regions to see if the resulting analysis has similarities to the one conducted by this class.

## 5. CONCLUSIONS

A course in environmental security, offered jointly by the ERAU Applied Meteorology and Homeland Security programs, has been a very successful addition to the undergraduate curriculum at the Daytona Beach campus. The course is different than most of the undergraduate offerings by virtue of the interdisciplinary aspects of ES, the diversity of undergraduate majors represented by the students taking the course, and the seminar format in which very complex international issues in environment and security are examined and discussed. The course continues to evolve at ERAU, and we hope to optimize the blend of traditional lecture and seminar so that the students can better learn how to link environmental science, environmental health, meteorology, climatology, and national security strategy principles together to gain a better understanding of the complex issues facing our nation and the international community in the next 15-25 years. It is our hope that this course becomes a cornerstone as we build an ES research program across the Applied Meteorology and Homeland Security programs at ERAU.

## 6. REFERENCES

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