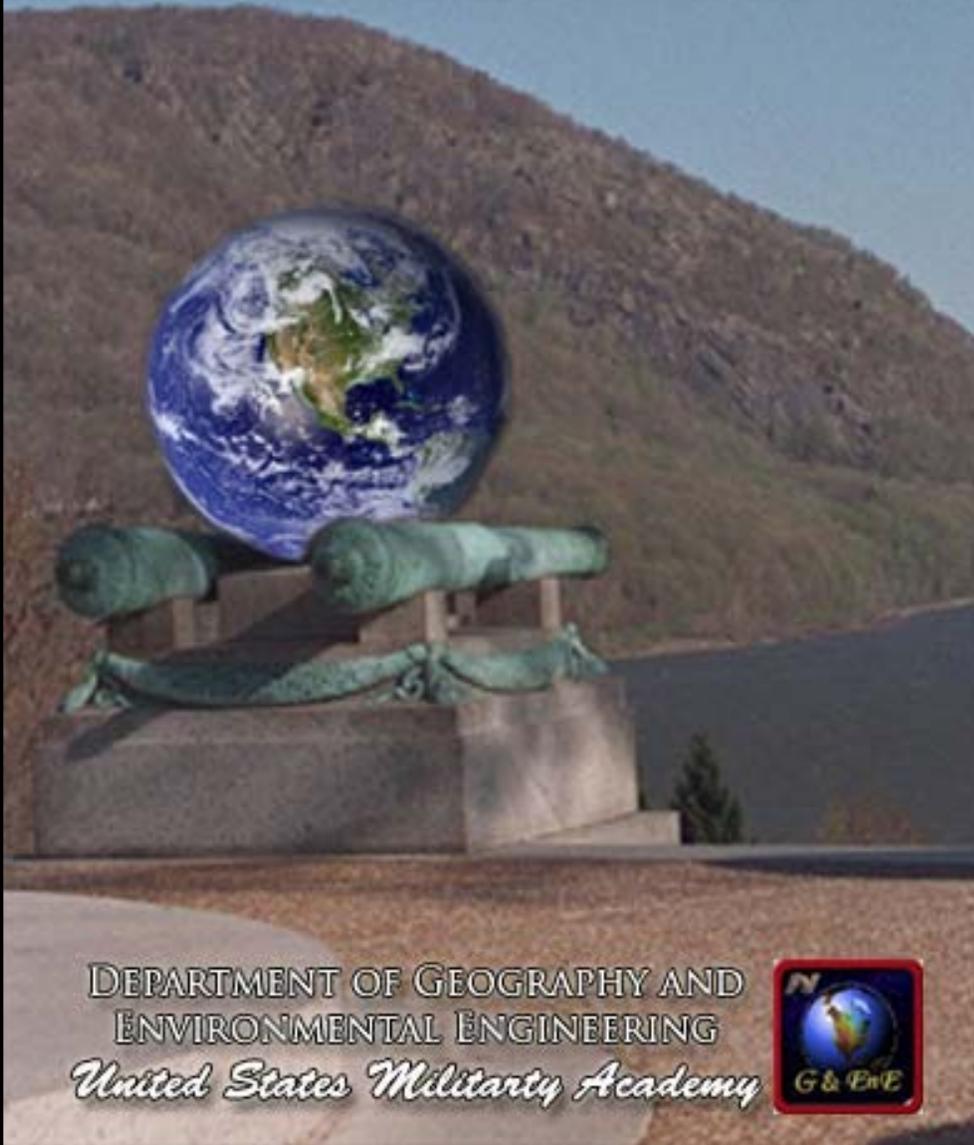




Department Catalog
and Guide to
Academic Programs

CLASS OF 2011



DEPARTMENT OF GEOGRAPHY AND
ENVIRONMENTAL ENGINEERING
United States Military Academy



*Department of Geography and
Environmental Engineering*



**SERVING
CADETS,
USMA,
AND OUR
NATION**

DEPARTMENT CATALOG AND GUIDE TO ACADEMIC PROGRAMS

FOR THE CLASS OF 2011

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Hometown Distribution, USMA Class of 2011	Inside Back Cover

Department Web Site External to USMA:

<http://www.dean.usma.edu/departments/geo/>

Department Web Site Internal to USMA:

<http://www-internal.dean.usma.edu/departments/geo/>

Department Academic Counselor: MAJ Hannon Didier



MESSAGE TO CADETS

The mission of the Department of Geography and Environmental Engineering is to enhance the intellectual, military and ethical development of all cadets by providing an understanding of the Earth, its people, and the interactions between the two. We offer studies in geography, environmental engineering, environmental science, and geospatial science, disciplines that have unquestionable relevance for our Army and nation.

The Department's overarching theme is to better understand the world in which we live. We offer a diverse group of majors and honors programs, which prepare cadets for service in the Army and encourage a lifetime of intellectual growth. These include:

1. **Human Geography:** the spatial study of people, their activities, and the places they inhabit.
2. **Environmental Geography:** the study of the interactions between people and the natural environment.
3. **Environmental Science:** A broad, integrative science-based study of how humans affect the planet with the goal of creating a sustainable future for all.
4. **Environmental Engineering:** The application of science and engineering principles to minimize the adverse effects of human activities on the environment and to protect human health by providing clean air and clean water.
5. **Geospatial Information Science:** the integration and analysis of satellite, GPS, and map intelligence information.

Our majors and honors programs will prepare cadets for lifelong professions that are personally rewarding and important to our nation. Despite the continual changes in our Army and throughout the world, there are several constants that continue to serve as guideposts for our profession.

- ★ Understanding weather and terrain will always be among the keys to victory in battle and success during other military operations.
- ★ Understanding other people is necessary to preserve peace.
- ★ Understanding our Earth is critical for our future health and well-being.

These imperatives describe what we in the Department of Geography and Environmental Engineering offer to you, first in our core course in physical geography and continuing with our exciting majors, honors programs, and environmental engineering sequence. In some respects, our mission is the same as every academic department at West Point: to prepare cadets for a career in the Army and a lifetime of service to the nation. Each academic course has the objective of developing you as a self-learner, problem solver, and critical thinker; all of which are attributes critical for success as a leader in the Army. In choosing a major, you select a subject to investigate in depth. Both the knowledge gained and the learning skills developed in this process better prepare you to contribute to the Army and the nation. Your task in selecting a major is to find the subject that excites you and inspires a vision for your future. We have much to offer - Let us tell you more!

Geography programs are alive and well in more than 275 universities across the country. Geography is an exciting discipline with great variety and tremendous relevance for future Army officers. Our program at West Point teaches cadets about the Earth as the home of humanity. We offer studies focused on the diverse peoples of the Earth. Our **Human Geography** major examines the spatial differentiation and organization of people, their activities, and lifestyles. Majoring in **Environmental Geography** enables the student to comprehend the processes - natural and human - that form and change the Earth and to understand how people interact with the natural environment. We use the Army as our laboratory to demonstrate how geography is used to accomplish military operations across the spectrum from peacetime to war. Geography majors have opportunities for advanced studies that literally take cadets around the world.

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The world's population of over 6 billion people places a serious burden on the sustainability of the Earth. The effects are now visible everywhere and include negative impacts on the air we breath, water we drink, and soils that we depend on for growing food. Environmental Scientists and Engineers are at the tip of the spear in trying to solve environmental dilemmas. We are going to have to find ways to co-exist with our natural environment. **Environmental Science** majors develop an understanding of the physical, chemical and biological processes that govern the Earth's activities. Cadets can choose to study in depth any of the ecological processes or methods that we use to analyze and protect the environment. Majoring in **Environmental Engineering** enables cadets to develop the skills needed to control human pollution of the air, land, and water. The major is an ABET-approved engineering program that prepares you to clean and sustain the environment, protecting all of us from the adverse impacts of human activity. Our graduates well exceed the national average pass rates on the Fundamentals of Engineering exam, the first important step in becoming a licensed professional engineer.

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In our **Geospatial Information Science** program, you learn to analyze, describe, and visualize the features of the Earth in remarkable detail. The newest and best computer hardware and software are used to instruct you in remote sensing, surveying, computer cartography, and geographic information systems, just to highlight a few areas. Army applications of this technology for analyzing the battlefield are obvious, but there is much more ongoing in this field. If you have interest in this area, visit the instructors and let them tell you about this area of study and show you our state of the art Geospatial Science Laboratory.

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Regardless of your major, the **Environmental Engineering Sequence** will enhance your West Point experience. This sequence accomplishes two goals in preparing you as an educated leader. First, it develops your ability to solve complex problems by introducing you to a decision-making process that is applied to current environmental issues. Second, the sequence provides an understanding of the key environmental issues threatening the well-being of the world today, such as safe and sufficient water for a growing world population, clean air and global atmospheric protection, and the management of hazardous and toxic wastes. You will examine the science underlying these issues as well as the laws and regulations established to protect people and the environment. The sequence culminates

by providing cadets with the opportunity to solve a complex environmental problem with competing technical, socio-cultural, political, and economic requirements.

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Your options are exciting and the possibilities are numerous. Please look through this booklet, consider what interests you, and then visit with our faculty, who are anxious to assist you in understanding the rewarding opportunities that are available within our department. ★



EUGENE J. PALKA
Colonel, US Army
Professor and Head
Department of Geography
and Environmental Engineering





Israel IAD Cadets in front of the Temple Mount and Al Aqse Mosque in Jerusalem.



Al Kharazmi, Dr. Wolfel's Uzbekistan IAD, 2008.

GEOGRAPHY AND ENVIRONMENTAL ENGINEERING AFTER GRADUATION

Each of our majors is focused on preparing you for success as a leader. Successful leaders are incisive thinkers who critically evaluate and solve problems. Regardless of your major, you will develop analytical problem solving skills in our classes that will serve you well in the future. Many of the problems you will face in the Army will be examined in our classes because the Army is our laboratory and we study real world examples. You will also become a capable user of some of the most up-to-date technology in your field. The department has the best undergraduate laboratory facilities in the country, and our Geospatial Sciences Laboratory is world-class. Thus, you will learn to understand the world around you, and be prepared to solve its most complex environmental problems. Our AIAD programs will provide you with an opportunity to see how the Army uses your discipline through assignments to Army and DoD activities throughout the world.

Majoring in this department does not limit your branch opportunities – on the contrary, it expands your value in whatever branch you choose. Each branch needs leaders who understand the world, its people, and how they interact – our programs will give you those skills. All Army units must train and operate in varied operational environments and within the guidelines of established environmental regulations in a way that sustains limited training lands. Finally, the special skills learned as part of the geospatial sciences program are critical to all types of military planning and provide the critical spatial data that every Army deployment requires. ★

- What Geographers and Environmental Engineers do for the Army

As a geographer or environmental engineer, you will be an asset to any branch or functional area. Your keen understanding of culture, technology, and engineering will provide you valuable insights for any mission. As our Army continues to place increased emphasis on cultural awareness and environmental issues, you will be well positioned to succeed regardless of your branch. Here are just a few examples:

WARFIGHTING: Geographers and environmental engineers are found in all combat and support branches. Terrain, weather, climate, and cultural landscapes are typically the decisive geographic elements common to every tactical environment and across the spectrum of Army missions. An understanding of physical geography enables the officer to judge the influence of climate, soils, vegetation, and terrain on military operations. A clear awareness of the fundamentals of cultural geography is a critical element in operational planning, given the high probabilities of low and mid-intensity conflict. Officers trained in the geospatial information sciences permit the Army to retain an advantage in maintaining information dominance on the battlefield. Environmental engineers and scientists are well suited to understanding and addressing environmental issues associated with warfare ranging between the use of environmental warfare by our adversaries to the protection of our troops from disease and other wartime environmental hazards.

OPERATIONS OTHER THAN WAR: As the Army's mission profile increasingly moves to stability and support operations, the need for well-trained geographers and environmental engineers will become critical. Today's peacekeeping and humanitarian support missions

occur around the world. Likewise, humanitarian assistance has been provided in places such as Haiti, the Democratic Republic of the Congo, Rwanda and Sudan. These examples reflect the diverse array of culture systems and physical environments with which our soldiers must contend. Officers trained in human geography understand cultural, political, and economic situations and are a valuable asset to every peacekeeping mission. Environmental geographers can assess the natural landscape, environmental resources, and human-environment interaction, thus providing useful information during peacekeeping or disaster relief operations. The environmental engineer is well suited to meet the demands of these situations by providing safe drinking water, improving sanitary conditions, and mitigating adverse impacts of military operations. Finally, all Army units rely on geospatial information.

SUPPORTING MILITARY TRAINING: During peacetime operations, leaders are increasingly challenged to develop imaginative ways in which to provide tough, realistic training while sustaining and improving the condition of our training areas. In preparing for the unit's wartime mission, a geographer's understanding of contingency locations around the world is useful in developing realistic training conditions. Environmental scientists and engineers implement policies that support a broad range of environmental protection regulations from resource management to hazardous waste disposal. Using modern geospatial information sciences and techniques, the spatial distribution of key training area resources as well as potential hazards can be accurately recorded and analyzed.



EV398 (Geographic Information Systems) cadets use the latest technology to create maps in the Geospatial Laboratory (GSL).

GEOGRAPHY AND ENVIRONMENTAL ENGINEERING AT WEST POINT

• Overview

The department offers some of the best undergraduate facilities in the country for the study of geography, geospatial information science, and environmental science/engineering. Each cadet's elective sequence, regardless of the program, is tailored according to personal interests and abilities. Throughout the program of study, special attention is focused on the analysis and evaluation of significant human-environment problems. This theme permeates all aspects of the academic program.

• Opportunities for Cadets Selecting Department Majors

DEPARTMENT ACTIVITIES AND FACILITIES. Our majors are integrated into a variety of activities. Cadets are invited to attend lectures, seminars, and professional discussions on a wide array of subjects. Departmental facilities include a specialized library, map room, computer graphics center, a geology laboratory, cartography and remote sensing laboratory, and environmental laboratories. Picnics, luncheons, coffee calls, and colloquia are held frequently so that students and faculty can continue the interactive process of learning in a variety of forums.

INDIVIDUAL ADVANCED DEVELOPMENT. The department sponsors an outstanding summer intern program for approximately 60 upper-class cadets as a part of Cadet Summer Training. Cadets have the opportunity to work with agencies such as the Army Environmental Center, Army Environmental Policy Institute, Topographic Engineer Center, National Imagery and Mapping Agency, Army Research Institute, Environmental Protection Agency, and Defense Intelligence Agency. Cadet travel can cover the entire world, including Central Asia, Southeast Asia, the Middle East, Southwest United States or any of an ever-changing array of locations. These programs offer unique opportunities for cadets to broaden their education while observing the critical contributions of their discipline at high levels of government.

INDIVIDUAL RESEARCH. Each semester a number of cadets are selected to participate in individually designed research and study programs on topics of special interest. Cadets and a faculty sponsor typically design projects jointly. Research endeavors such as these offer a unique opportunity to excel in an area of academic interest. Examples of recent projects include a base camp suitability model for Croatia using GIS, herbicide effectiveness on invasive lake species in Wilkins Pond, determining lead mobility from small arms ranges, mixing and stratification impact on water quality issues in Devils Lake North Dakota, and an evaluation of beach erosion hot-spots along the mid-Atlantic coast.

HONORS PROGRAMS. Five of the department's six majors offer an honors program for qualified cadets. The Geography honors program begins during term seven as participants attend a research seminar. During this seminar, cadets explore salient research issues in their particular field, learn methodologies, and develop technical writing skills. As part of this seminar, each cadet will define a research topic, explore the literature, and develop a research proposal. During their final term, cadets will use the research proposal as a point of departure and conduct an independent study project. At the end of the year, cadets will present their findings to the faculty and submit a written honors thesis. The GIS and

Academic Awards - Previous Awardees

- Congressional Medal of Honor Society Award for Excellence in Geography

08 – Lauren Teal	03 - Thomas Lainis	98 - Michael Lipsner
07 - Jennifer Lichty	02 - Eric Wilkinson	97 - Aaron Ecklund
06 - Sarah McNair	01 - Matthew Sullivan	96 - Brian Gavula
05 - Kristin Davis	00 - Joshua Schneider	95 - Mark Walters
04 - Charles Lewis	99 - Matthew Debiec	94 - Kevin Kercher

- Order of Founders and Patriots of America Award for Excellence in Environmental Science and Environmental Engineering

08 – Russell Raines	03 - Sarah Williams	98 - Bradley Stoltz
07 - Brandon Woerth	02 - Stephen Lewandowski	97 - Ralph Radka
06 – Justin Sprague	01 - Paul McBride	96 - David Hernke
05 - Sean Healy	00 - Jeffery Jager	95 - David Phillips
04 - Joe Marullo	99 - Travis Rayfield	94 - Brett Sylvia

- National Organization of the Ladies Auxiliary Veterans of Foreign Wars of the United States Award for Excellence in the Environmental Engineering Sequence

08 – Zachary Miller	03 - Daniel Tran	98 - William Blake
07 - Jeremy Stratman	02 - Jose Garcia-Aranda	97 - Jacob Kramer
06 – Matthew Schardt	01 - Jeffrey Han	96 - Brian Gavula
05 - Jordan Yokley	00 - Nicholas Schommer	95 - Jason Rowe
04 - Todd Martin	99 - Stephen Mintz	94 - Kevin Hicks

- Environmental Systems Research Institute award for excellence in Geospatial Information Science

08 – Jonathan Dyer	05 – William Zielinski	02 - Miguel Gastellum
07 – Jeremy Stratman	04 – Grace Chung	01 - Ryan Piotrowski
06 – Doug Calloway	03 - Jeffrey Oster	00 - Joshua Schneider

- BAE award for excellence in Photogrammetry

07 - Andrew Morgan	08 - Nicholas Dieter
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GEOGRAPHY & ENVIRONMENTAL ENGINEERING PROGRAMS: CLASS OF 2011

SCOPE: Our Geography, Environmental, and Geospatial Information Science programs are designed to prepare cadets for careers involving the observation, evaluation and design of human and physical systems in today's interdependent world. State of the art departmental laboratory facilities support our programs.

OPTIONS: Students desiring to complete a baseline program have six alternatives for a major. Those who desire academic enrichment in the discipline and meet academic requirements may apply to participate in an honors program in five of our six majors. The program areas are:

- ★ Human Geography
- ★ Environmental Geography
- ★ Environmental Science
- ★ Environmental Engineering
- ★ Environmental Engineering Studies
- ★ Geospatial Information Science

CORE REQUIREMENTS: You must complete or have received USMA credit for the 26 core courses as shown in the General Section of the USMA Academic Program (Redbook) for your class. You must also fulfill the Information Technology core course requirement.

ENGINEERING SEQUENCE: The **3-Course Environmental Engineering Sequence** is available to all cadets. It furnishes an engineering sequence that focuses on important environmental issues and provides cadets with the opportunity to develop viable, sustainable solutions. It offers an opportunity to learn and apply the engineering design process in the natural world, within which social, political, cultural, and economic considerations are critical factors in decision-making. The environmental engineering sequence has three important objectives:

- ★ Have cadets attain a fundamental appreciation of the most salient environmental issues and an understanding of their underlying causes and impacts on the natural environment.
- ★ Provide cadets with the ability to formulate and communicate practical engineering solutions to important environmental problems.
- ★ Teach cadets to develop and apply viable engineering solutions that conform to important economic, social, cultural, and political criteria.

The first course in the sequence, **EV300 (Environmental Science)**, provides cadets with a broad understanding of what the term "environmental issues" encompasses and how influences, especially human, cause changes in the balance of Earth's natural and biological cycles. The second course, **EV350 (Environmental Technologies)**, builds on the EV300 experience through the application of science-based engineered solutions to common environmental issues. Finally, in **EV450 (Environmental Decision Making)** cadets learn to balance engineered solutions with economic, social, political, and ecological considerations. Using many aspects of water resources, such as hydropower, navigation, drinking water supply, fish habitat, recreation, as a teaching model, cadets learn decision-making and policy development realities. ★

PROGRAM DESCRIPTIONS

• GEOGRAPHY

Geographers examine the spatial arrangements, processes, distributions, and organization of natural and human landscapes. Geography is a broad, integrating discipline with methodologies and analytical foundations that span engineering, science, and the humanities. Majoring in geography requires persistent curiosity and inquiry into human-land-environment interfaces: how natural systems function; how physical landscapes evolve; how human populations adapt; and how humans shape the environment. Two majors allow cadets to explore geography either from a natural or social science perspective. The Environmental Geography program emphasizes the study of the natural landscape, anthropogenic influences on the environment, and natural hazards. The Human Geography program enables cadets to explore cultural diversity, population trends, and political systems from a global and regional perspective. Both programs integrate the use of geographic skills such as computer cartography, remote sensing, and geographic information systems. Geography is the ideal discipline for an Army officer in a changing world. ★



Main Points of Contact: Human Geography: COL Hummel, W5304, x3161,
email: laurel.hummel@usma.edu

Environmental Geography: Dr. Amy Richmond, W5412, x3735,
email: amy.richmond@usma.edu

• ENVIRONMENTAL SCIENCE

Pressures created by technological developments and unceasing human population growth are straining the relationship between modern society and the Earth upon which we depend. Environmental scientists conduct investigations with the purpose of identifying, abating, or eliminating the sources of these pressures with the goal of minimizing further environmental degradation and creating a sustainable balance between human-kind and our natural resources. This major develops insight into the processes that govern our environment by expanding upon the USMA core science education by adding studies in the natural sciences such as biology, ecology, geology and meteorology. This broad academic background is excellent preparation for challenges faced by a military leader who must balance resource and human requirements. The program seeks (1) to enhance your curiosity about natural processes and your ability to study such processes as a scientist and (2) to deepen your knowledge of human influences on the environment and foster evaluation of our individual and collective responsibilities as environmental stewards. ★



Main Point of Contact: Dr. Marie Johnson, W5416, x4855,
email: marie.johnson@usma.edu

• ENVIRONMENTAL ENGINEERING

Environmental engineers face a range of issues from disasters like air pollution from the terrorist attack on the Twin Towers or water pollution from Hurricane Katrina in New Orleans. Environmental engineers use chemical, biological, and physical processes to engineer systems that address these issues. This discipline is evolving to face new challenges resulting from rapid growth in human population and technology. Environmental engineers work in multinational teams to develop methods to combat global climate change; find alternative sources of energy; and to recover materials from discarded products. It is not surprising that a report in Fortune Magazine identified environmental engineering as the fastest growing profession for the period 2002 to 2012. Our program provides you with an active learning experience designed to develop your knowledge of math, science, and engineering science and your ability to use this knowledge to be an active problem solver for complex environmental issues. This skill has been invaluable to our graduates in the Army as they work environmental projects in Iraq and Afghanistan and look after the welfare of their soldiers. The objectives of the Environmental Engineering Program identify what our graduates can accomplish after graduation. Graduates of the Environmental Engineering Program can:



- Analyze and solve complex problems. Graduates can apply their knowledge of mathematics, science, engineering, and the humanities to analyze and solve practical problems to include those in Environmental Engineering. They can evaluate, mitigate, and communicate risk. They can use appropriate technologies to formulate effective, context-based courses of action; adapt methods and strategies to overcome incomplete or imperfect information; and recommend or choose a best course of action. Graduates can creatively adapt problem solving strategies and solutions to a rapidly changing and/or potentially life threatening situations. Problem solving is not bounded by disciplinary expertise. Graduates may encounter problems within the environmental engineering discipline, or within the broader context of officership in the profession of arms.
- Lead, manage, and execute. Graduates can lead people, manage resources and programs, prioritize activities, and execute projects within constraints to successfully complete the mission within the environmental field and the Army. Graduates must be able to execute an array of missions efficiently while minimizing environmental impacts. Potential missions include actions in combat, homeland security, disaster relief, humanitarian aid, and other operations under austere conditions.
- Communicate effectively. Graduates have the ability to listen to, understand, and assess varying viewpoints and can, based on this assessment, communicate pertinent information to stakeholders and the general public in such a manner as to bridge their differences and strengthen relationships among them.
- Recognize their roles as a professional. Graduates have internalized their professional responsibilities to society, the profession of arms, and the practice of engineering. They demonstrate internalization through participation in professional societies, continuing education, progression in assignments, community outreach, and other activities. ★

Main Point of Contact: Dr. Mike Butkus, W5317, x2820,
email: mike.butkus@usma.edu

• **GEOSPATIAL INFORMATION SCIENCE**

Fundamental to understanding our environment and the geography of the Earth is our ability to locate, measure, and quantify geographic phenomena. The discipline of geospatial information science (GIS) is concerned with the measurement of the earth and of all that is on it—natural and man-made. Cadets develop expertise in subjects ranging from traditional methods of land surveying to satellite imaging and positioning systems. The GIS curriculum builds on a firm math, science, and geography foundation with specialized courses in surveying, cartography, photogrammetry, remote sensing, and geographic information systems. Both the civil and military sectors of our society are placing an ever-increasing reliance on the ability to build and query geospatial information to support a myriad of social/economic and engineering issues. The cadet at USMA has a rare opportunity to pursue an integrated field of study that is commonly spread over several separate disciplines at other institutions. This major has applicability for the future military officer regardless of branch. Cadets majoring in GIS receive a 3Y (Space Activities) Skill Identifier on their official military record. The curriculum prepares cadets for advanced civil schooling in any of the specialized fields of GIS. ★



Main Point of Contact: Dr. John Brockhaus, W5302, x2063,
email: john.brockhaus@usma.edu

**GEOGRAPHY AND ENVIRONMENTAL ENGINEERING
FACULTY COUNSELORS FOR AY 08-09**

<u>PROGRAM</u>	<u>FIELD COUNSELOR</u>	<u>OFFICE</u>	<u>PHONE</u>
Geography	COL Hummel	W5304	3161
Environmental Engineering and Science	Dr. Johnson	W5416	4855
Geospatial Information Science	Dr. Brockhaus	W5302	2063
Counseling and Scheduling	MAJ Didier	W5400	3253

COURSE DIRECTORS

<u>COURSE</u>	<u>TITLE</u>	<u>COURSE DIRECTOR</u>	<u>OFFICE</u>	<u>PHONE</u>
EV203	Physical Geography	LTC Henderson	W5411	3938
EV300	Environmental Science	MAJ Roux	W5322	4622
EV301	Environmental Science for Engineers and Scientists	MAJ Davis	W5318	4135
EV303	Foundations in Geography	MAJ Bushman	W5312	3093
EV350	Environmental Engineering Technologies	MAJ Czekanski	W5332	3042
EV365	Geography of Global Cultures	MAJ Chastain	W5316	3094
EV371	Geography of Russia	Dr. Wolfel	W5100	8198
EV372	Geography of Asia	MAJ Fuhriman	W5400	3166
EV373	Geography of Latin America	MAJ Ridgeway	W5400	2679
EV374	Geography of the Middle East and Africa	MAJ Dunmire	W5319	0207
EV377	Remote Sensing	Dr. Brockhaus	W5302	2063
EV378	Cartography	MAJ Irmischer	W5414	4620
EV379	Photogrammetry	MAJ Didier	W5400	3253
EV380	Principles of Surveying	MAJ Didier	W5400	3253
EV384	Geography of North America	COL Palka	W6000	4354
EV385	Introduction to Environmental Engineering	MAJ Jordano	W5311	3531
EV386	Geography of Europe	Dr. Richmond	W5412	3735
EV387	Meteorology	Lt. Col. Rios	W5409	4869
EV388A	Physical Geology	Dr. Johnson	W5416	4855
EV388B	Geomorphology	MAJ Clark	W5332	3986
EV389B	Climatology	Lt. Col. Rios	W5409	4869
EV390B	Urban Geography	Dr. Wolfel	W5100	8798
EV391A	Principles of Land Use Planning and Management	MAJ Verell	W5321	3540
EV391B	Environmental Geology	LTC Smith	W5424	3136
EV394	Hydrogeology	MAJ Czekanski	W5332	3042
EV396	Environmental Biological Sys.	MAJ McAllister	W6003	3509

<u>COURSE</u>	<u>TITLE</u>	<u>COURSE DIRECTOR</u>	<u>OFFICE</u>	<u>PHONE</u>
EV397	Air Pollution Engineering	MAJ Roux	W5322	4622
EV398	Geographic Information Systems	LTC Hendricks	W5303B	4869
EV399A	Geology Field Course	Dr. Johnson	W5416	4855
EV401	Physical and Chemical Treatment	Dr. Butkus	W5317	2820
EV402	Biochemical Treatment	Dr. Butkus	W5317	2820
EV450	Environmental Decision Making	MAJ McAllister	W6003	3509
EV471	Ecology	LTC Smith	W5324	3136
EV477	Advanced Remote Sensing	Dr. Brockhaus	W5302	2063
EV478	Military Geospatial Operations	LTC Fleming		2326
EV480	Honors Seminar in Geography	COL Hummel	W5304	3161
EV481	Water Resources Planning and Design	COL Lynch	W6001	5126
EV482	Military Geography	LTC Henderson	W5411	3938
EV485	Special Topics in Geography and the Environment	COL Hummel	W5304	3161
EV486	Environmental Geography	Dr. Richmond	W5412	3735
EV487	Environmental Security	Dr. Johnson	W5416	4855
EV488	Solid and Hazardous Waste Treatment and Remediation	MAJ Davis	W5318	4135
EV489A	Advanced Individual Study I	Assigned to individual cadets		
EV489B	Advanced Individual Study II	Assigned to individual cadets		
EV490	Advanced Environmental Process Design	Dr. Butkus	W5317	2820
EV498	Advanced Geographic Information Systems	LTC Hendricks	W5303B	4869
XS391	Principles and Applications of Environmental Chemistry	Dr. Butkus	W5317	2820



A 5-year old Karen Hill Tribe girl near Chiang Mai, Thailand, poses for Ms. Sandi Duncan on the 2008 Thailand IAD.



Cadets Pao Mei Etchells and Paul Knudsen eating well with MAJ Chastain in Stuttgart, Germany.

HUMAN GEOGRAPHY

HUMAN GEOGRAPHY MAJOR (GEO) HUMAN GEOGRAPHY MAJOR WITH HONORS (GEOH)

CORE CURRICULUM AND ENGINEERING SEQUENCE:

- Complete the 26-course core curriculum
- Complete any 3-course core engineering sequence
- Complete one (1) of the two (2) following courses:

Course #	Course Title
IT305	Theory and Practice of Military IT Systems
IT355	Advanced Theory and Practice of Military IT Systems

FOUNDATION COURSES

- Complete the three (3) courses listed below:

Course #	Course Title
EV303	Foundations in Geography
EV365	Geography of Global Cultures
EV398	Geographic Information Systems

REGIONAL GEOGRAPHY

- Complete one (1) of the six (6) Regional Geography courses listed below:

Course #	Course Title
EV371	Geography of Russia
EV372	Geography of Asia
EV373	Geography of Latin America
EV374	Geography of the Middle East and Africa
EV384	Geography of North America
EV386	Geography of Europe

PHYSICAL GEOGRAPHY

- Complete one (1) of the four (4) courses listed below:

Course #	Course Title
EV388A	Physical Geology
EV388B	Geomorphology
EV389B	Climatology
EV391B	Environmental Geology

GEOGRAPHY TOOL

- Complete the course listed below:

Course #	Course Title
LX ____	Third Semester of Language

GEOGRAPHY ELECTIVE

- Complete two (2) of three (3) courses listed below:

Course #	Course Title
EV390B	Urban Geography
EV391A	Principles of Land Use Planning and Management
EV3XX	Any Regional Geography Course (see list on previous page)

GENERAL ELECTIVE

- Complete one (1) of the sixty-seven (67) courses listed below:

Course #	Course Title
EV371	Geography of Russia
EV372	Geography of Asia
EV373	Geography of Latin America
EV374	Geography of the Middle East and Africa
EV377	Remote Sensing
EV378	Cartography
EV384	Geography of North America
EV386	Geography of Europe
EV387	Meteorology
EV388B	Geomorphology
EV389B	Climatology
EV390B	Urban Geography
EV391A	Principles of Land Use Planning and Management
EV391B	Environmental Geology
EV397	Air Pollution Engineering
EV478	Geospatial Military Operations
EV483	Colloquium in Geography
EV485	Special Topics in Geography and the Environment
EV487	Environmental Security
EV489A	Advanced Individual Study in Geography
EP333	Cultural Studies
EP392	Ethnic Literature
HI337	China – C. Kingdom to Communist Rule
HI339	The Modern Middle East
HI340	Colonial America
HI341	The Age of Exploration
HI342	The British Isles Since 1688
HI343	Modern Germany
HI345	Modern Africa
HI346	Modern South Asia
HI347	Asian Warfare and Politics
HI349	The Middle East to 1798
HI360	History of the Classical World
HI361	History of Medieval Europe
HI362	History of Early Modern Europe

Course #	Course Title
HI363	Europe in Transition and Revolution
HI364	Modern Western Europe
HI365	The Ancient World
HI367	History of Imperial/Soviet Russia
HI368	Mod. Central and E. Europe 1896-1989
HI369	American Frontiers
HI372	History of US Foreign Relations, 20 th Century
HI390	Early National America
HI391	History of World Religions
HI394	Revolutionary America
HI395	History of Civil War America
HI396	Making of Modern America
HI398	Society & Culture in American History
LW481	International Law
LX400	4 th Semester Foreign Language
MA376	Applied Statistics
MS360	Low Intensity Conflict
MS455	Comparative Military Systems
PL361	Research Methods
PL377	Social Inequality: Race, Gender, and Ethnicity
SS360	Political Analysis
SS366	Comparative Politics
SS368	Econometrics
SS372	Politics and Gov. of China
SS374	Politics & Gov. of Korea & Japan
SS375	Politics and Governments of Russia & Neighbors
SS377	Politics & Gov. of Europe
SS381	Political and Cultural Anthropology
SS383	Politics and Governments of the Middle East
SS384	Politics and Governments of Latin America
SS385	Comparative Economic Systems
SS485	Politics and Development in Sub-Saharan Africa

INTEGRATIVE EXPERIENCE

- Complete the following course:

Course #	Course Title
EV482	Military Geography

HONORS PROGRAM IN HUMAN GEOGRAPHY

- Cadets pursuing the honors program in Human Geography must meet the entry-level requirement of having a 3.00 grade point average in the Core Curriculum, an APSC of at least 3.5 in the major, and approval by the Geography Program Director. Cadets approved for participation in the honors program must complete the following courses:

Course #	Course Title
EV480	Honors Seminar in Geography
EV489B	Advanced Individual Study II

Note: These courses may be taken as additional electives by any cadets, not just those in the honors program.



From Right to Left: Tony Nash, Miriam Bottrell, MAJ Cuviallo, Pao Mei Etchells and Jon Lohan chill out on the Great Wall on the 2008 Geography of China IAD.



Cadets Darrell Lytle (GIS), Erin Mc Conaughey (Human Geo), Laura Dinkelacker (FAS), and MAJ Brian Dunmire at the Temple of Trajan, in Pergamon, Turkey.

ENVIRONMENTAL GEOGRAPHY

ENVIRONMENTAL GEOGRAPHY MAJOR (EGE) ENVIRONMENTAL GEOGRAPHY MAJOR WITH HONORS (EGEH)

CORE CURRICULUM AND ENGINEERING SEQUENCE:

- Complete the 26-course core curriculum
- Complete the Environmental Engineering Sequence
- Complete one (1) of the two (2) following courses:

Course #	Course Title
IT305	Theory and Practice of Military IT Systems
IT355	Advanced Theory and Practice of Military IT Systems

FOUNDATION COURSES

- Complete the three (3) courses listed below:

Course #	Course Title
EV303	Foundations in Geography
EV398	Geographic Information Systems
EV486	Environmental Geography

PHYSICAL GEOGRAPHY STEM

- Complete one (1) of the two (2) courses listed below:

Course #	Course Title
EV388B	Geomorphology
EV389B	Climatology

PHYSICAL GEOGRAPHY ELECTIVE

- Complete one (1) of the five (5) courses listed below:

Course #	Course Title
EV387	Meteorology
EV388A	Physical Geology
EV388B	Geomorphology
EV389B	Climatology
EV391B	Environmental Geology

GEOGRAPHY TOOLS AND LANDSCAPE ANALYSIS

- Complete one (1) of the three (3) courses listed below:

Course #	Course Title
EV377	Remote Sensing
EV390B	Urban Geography
EV391A	Principles of Land Use Planning and Management

CULTURE STEM

- Complete the following course:

Course #	Course Title
EV365	Geography of Global Cultures

REGIONAL GEOGRAPHY ELECTIVE

- Select one (1) of the six (6) Regional Geography courses listed below:

Course #	Course Title
EV371	Geography of Russia
EV372	Geography of Asia
EV373	Geography of Latin America
EV374	Geography of the Middle East and Africa
EV384	Geography of North America
EV386	Geography of Europe

GENERAL ELECTIVE:

- Complete one (1) of the twenty-eight (28) courses listed below:

Course #	Course Title
EV371	Geography of Russia
EV372	Geography of Asia
EV373	Geography of Latin America
EV374	Geography of the Middle East and Africa
EV377	Remote Sensing
EV378	Cartography
EV379	Photogrammetry
EV380	Principles of Surveying
EV384	Geography of North America
EV386	Geography of Europe
EV387	Meteorology
EV388A	Geology
EV388B	Geomorphology
EV389B	Climatology
EV390B	Urban Geography
EV391A	Principles of Land Use Planning and Management
EV391B	Environmental Geology
EV394	Hydrogeology
EV397	Air Pollution Engineering
EV483	Colloquium in Geography
EV485	Special Topics in Geography and the Environment
EV487	Environmental Security
EV489A	Advanced Individual Study in Geography
LX300	Third Semester Foreign Language
MA376	Applied Statistics

SS368	Econometrics I
SS385	Comparative Economic Systems
SS485	Politics & Development of Sub-Saharan Africa

INTEGRATIVE EXPERIENCE

- Complete the following course

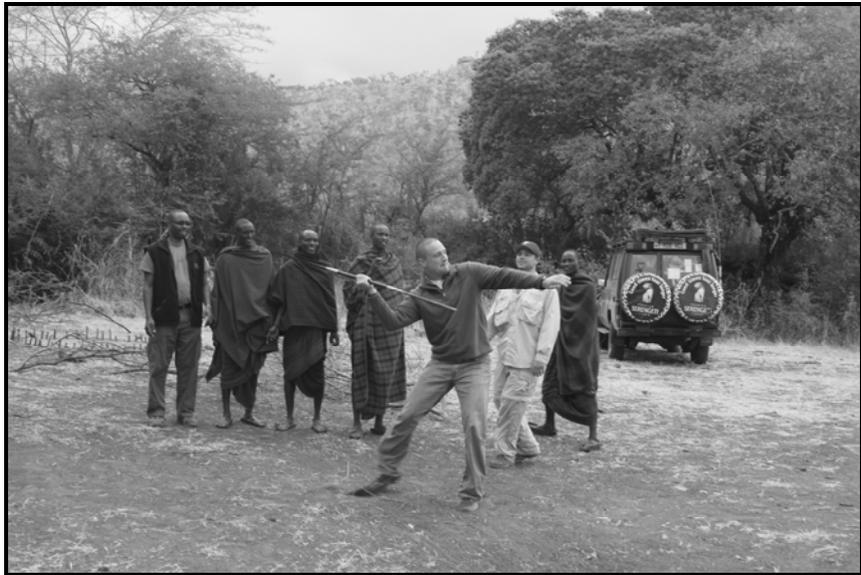
Course #	Course Title
EV482	Military Geography

HONORS PROGRAM IN ENVIRONMENTAL GEOGRAPHY

- Cadets pursuing the honors program in Human Geography must meet the entry-level requirement of having a 3.00 grade point average in the Core Curriculum, an APSC of at least 3.5 in the major, and approval by the Geography Program Director. Cadets approved for participation in the honors program must complete the following courses:

Course #	Course Title
EV480	Honors Seminar in Geography
EV489B	Advanced Individual Study II

Note: These courses may be taken as additional electives by any cadets, not just those in the honors program.



Cadet Bill Leahy attempts to impress the locals during a Masai warrior induction ceremony on the Tanzania IAD in July of 2008.



ENVIRONMENTAL SCIENCE

ENVIRONMENTAL SCIENCE MAJOR (ESC) ENVIRONMENTAL SCIENCE MAJOR WITH HONORS (ESCH)

CORE CURRICULUM AND ENGINEERING SEQUENCE:

- Complete the 26-course core curriculum
- Complete the Environmental Engineering Sequence
- Complete one (1) of the two (2) following courses:

Course #	Course Title
IT305	Theory and Practice of Military IT Systems
IT355	Advanced Theory and Practice of Military IT Systems

- Complete the four (4) courses listed below:

Course #	Course Title
CH375	Introduction to Biology
EV365	Geography of Global Cultures
EV471	Ecology
EV487	Environmental Security

- Complete one (1) of the three (3) courses listed below:

Course #	Course Title
CH385	Introduction to Cell Biology
EV377	Remote Sensing
EV398	Geographic Information Systems

- Complete the two (2) of the seven (7) Environmental Science Directed Electives:

Course #	Course Title
CH383	Organic Chemistry I
CH384	Organic Chemistry II
EV391A	Land Use Planning and Management
EV391B	Environmental Geology
EV396	Environmental Biological Systems
EV398	Geographic Information Systems
XS391	Principles and Applications of Environmental Chemistry

- Complete one (1) of the two (2) following courses:

Course #	Course Title
EV387	Meteorology
EV398B	Climatology

- Complete one (1) of the two (2) following courses:

Course #	Course Title
EV388A	Physical Geology
EV399A	Geology Field Course

ENVIRONMENTAL SCIENCE ELECTIVES:

Complete one (1) of the thirty-eight (38) of Environmental Science Field Electives.

Course #	Course Title
EV377	Remote Sensing
EV378	Cartography
EV380	Principles of Surveying
EV384	Geography of North America
EV386	Geography of Europe
EV387	Meteorology
EV388B	Geomorphology
EV390B	Urban Geography
EV391A	Principles of Land Use Planning and Management
EV391B	Environmental Geology
EV394	Hydrogeology
EV396	Environmental Biological Systems
EV397	Air Pollution Engineering
EV398	Geographic Information Systems
EV401	Physical and Chemical Treatment
EV482	Military Geography
EV488	Solid and Hazardous Waste Management
EV489A	Advanced Individual Study I
XS391	Principles and Applications of Environmental Chemistry
CE302	Statics and Dynamics
CE380	Hydrology/Hydraulic Design
CH357	Microbiology
CH383	Organic Chemistry I
CH384	Organic Chemistry II
CH385	Introduction to Cell Biology
CH387	Human Physiology
CH481	Physical Chemistry I
EP386	Philosophy of Science
LW481	International Law
MA363	Vector Calculus and ODE
MA366	Vector Calculus and Introduction to PDE
MA391	Mathematical Modeling
MA396	Numerical Methods for the Solution of DE
MA476	Mathematical Statistics
MS350	Military Communications
EM381	Engineering Economy
SS479	Environmental Economics
SS480	Public Policy Making Process

• Cadets pursuing an honors program will complete 1) EV489A (Advanced Individual Study), 2) an additional course from the field elective, and 3) attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

ENVIRONMENTAL ENGINEERING

ENVIRONMENTAL ENGINEERING MAJOR (EVE)

- Complete the 26-course core curriculum
- Complete the following fourteen (14) courses:

Course #	Course Title
CE302	Statics and Dynamics
EV301	Environmental Science for Engineers and Scientists
EV394	Hydrogeology
EV396	Environmental Biological Systems
EV397	Air Pollution Engineering
EV400	Environmental Engineering Seminar
EV401	Physical and Chemical Treatment
EV402	Biochemical Treatment
EV481	Water Resources Planning and Design
EV488	Solid and Hazardous Waste Treatment and Remediation
EV490	Advanced Environmental Process Design
MA366	Vector Calculus and Introduction to PDE
ME311	Thermal Fluid Systems I
XS391	Principles and Applications of Environmental Chemistry

- Complete one (1) of the two (2) following courses:

Course #	Course Title
EV388A	Physical Geology
EV399A	Geology Field Course

- Complete three (3) of the sixteen (16) courses to satisfy the Environmental Engineering Field Elective requirement. The sum of the Engineering Science (ES) and Engineering Design (ED) per the current Redbook for the two Field Electives must be 4.5 credits or greater.

Course #	Course Title
EV377	Remote Sensing
EV380	Surveying
EV388B	Geomorphology
EV391B	Environmental Geology
EV398	Geographic Information Systems
EV485	Special Topics in Geography and the Environment
EV489A	Advanced Individual Study I
EV489B	Advanced Individual Study II
CE380	Hydrology and Hydraulic Design
CE362	Mass and Energy Balances
EE301	Fundamentals of Electrical Engineering
EM381	Engineering Economy

EM411	Project Management
ME312	Thermal-Fluid Systems II
SE375	Statistics for Engineers
SE385	Decision Analysis

- Cadets pursuing an honors program must complete Advanced Individual Studies I (EV489A) as one of their Field Electives, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.



EV301 cadets showing off their new hardhats on a visit to a waste-to-energy facility.



Cadets measure the viscosity of corn syrup as an analogy for lava viscosity in an EV391B lab.

ENVIRONMENTAL ENGINEERING STUDIES

ENVIRONMENTAL ENGINEERING STUDIES MAJOR (EES)

- Complete the 26-course core curriculum
- Complete the following eleven (11) courses:

Course #	Course Title
IT305 or IT355	Theory & Practices (or Advanced Theory) of Military IT Systems
EV301	Environmental Science for Engineers and Scientists
EV388A OR EV399A	Physical Geology OR Geology Field Course (based on selection for summer AIAD)
EV396	Environmental Biological Systems
EV397	Air Pollution Engineering
EV401	Physical and Chemical Treatment
EV402	Biological Treatment
EV481	Water Resources Planning and Design
EV490	Advanced Environmental Process Design
ME311	Thermal Fluid Systems I
XS391	Principles and Applications of Environmental Chemistry

- Complete two (2) Environmental Engineering directed electives:

Course #	Course Title
CE302	Statics and Dynamics
CE380	Hydrology and Hydraulic Design
MA366	Vector Calculus and Introduction to PDE
EV394	Hydrogeology
EV488	Solid and Hazardous Waste Treatment and Remediation

- Complete one (1) of the twenty (20) courses from the Environmental Engineering field electives list:

Course #	Course Title
CE302	Statics & Dynamics
CE380	Hydrology & Hydraulic Design
CH362	Mass and Energy Balances
EE301	Fundamentals of Electrical Engineering
EM380	Engineering Materials
EM381	Engineering Economy
EM411	Project Management
EV377	Remote Sensing
EV380	Surveying
EV388B	Geomorphology
EV391B	Environmental Geology
EV394	Hydrogeology
EV398	Geographic Information Systems
EV485	Special Topics in Geography and the Environment (with approval)
EV488	Solid and Hazardous Waste Treatment and Remediation

Course #	Course Title
EV489A	Advanced Individual Study I
EV489B	Advanced Individual Study II
ME312	Thermal-Fluid Systems II
SE375	Statistics for Engineers
SE385	Decision Analysis

- No Honors Program is offered in the Environmental Engineering Studies major.



Environmental Engineer Will Brant with Mayan villagers in the western highlands of Guatemala on his 2008 IAD.



"Mad Scientist" MAJ McAllister helps cadets conduct their jar test experiment.

GEOSPATIAL INFORMATION SCIENCE

GEOSPATIAL INFORMATION SCIENCE MAJOR (GIS) GEOSPATIAL INFORMATION SCIENCE MAJOR WITH HONORS (GISH)

CORE CURRICULUM AND ENGINEERING SEQUENCE:

- Complete the 26-course core curriculum
- Complete any 3-course engineering sequence
- Complete one (1) of the two (2) following courses:

Course #	Course Title
IT305	Theory and Practice of Military IT Systems
IT355	Advanced Theory and Practice of Military IT Systems

- Complete the following Fundamentals of GIS courses:

Course #	Course Title
EV377	Remote Sensing
EV378	Computer Cartography
EV398	Geographic Information Systems

- Complete one (1) of two (2) spatial data acquisition courses:

Course #	Course Title
EV379	Photogrammetry
EV380	Principles of Surveying

- Complete two (2) advanced spatial data analysis course:

Course #	Course Title
EV477	Advanced Remote Sensing
EV498	Advanced Geographic Information Systems

- Complete the following integrative experience:

Course #	Course Title
EV482	Military Geography

- Complete the following cultural immersion course:

Course #	Course Title
EV365	Geography of Global Cultures

- Select two (2) of the nineteen (19) courses from the Geospatial Information Science elective list:

Course #	Course Title
EV300	Environmental Science
EV371	Geography of Russia
EV372	Geography of Asia
EV373	Geography of Latin America
EV374	Geography of the Middle East and Africa
EV379	Photogrammetry
EV380	Principles of Surveying
EV384	Geography of North America
EV386	Geography of Europe

Course #	Course Title
EV388A OR EV399A	Physical Geology OR Geology Field Course
EV388B	Geomorphology
EV389B	Climatology
EV390B	Urban Geography
EV391A	Principles of Land Use Planning and Management
EV391B	Environmental Geology
EV397	Air Pollution Engineering
EV478	Military Geospatial Operations
EV481	Water Resources Planning and Design
EV489A	Advanced Individual Study I
EV489B	Advanced Individual Study II

*NOTE: Cadets may select either EV388A or EV399A, but not both. Additionally, only cadets pursuing the honors program may select EV489B

- Cadets pursuing an Honors program in Geospatial Information Science must complete the following course, and select one additional course from the GIS electives list, and achieve a final APSC of at least 3.0 in the core curriculum and a final APSC of at least 3.5 in the major.

Course #	Course Title
EV489A	Advanced Individual Study I



Left to right: Madeline Lewis, Lon McBride, and Nick Dieter taking a pit stop during their Alaska IAD.

COURSE OFFERINGS

Course #	Course Title	091	092	101	102	111	112
EV203	Physical Geography (093: 103)	X	X	X	X	X	X
EV300	Environmental Science	X		X		X	
EV301	Env Sci for Engineers	X		X		X	
EV303	Foundations in Geography	X		X		X	
EV350	Env Engineering Technologies		X		X		X
EV365	Geography of Global Cultures	X	X	X	X	X	X
EV371	Geography of Russia	X		X		X	
EV372	Geography of Asia		X		X		X
EV373	Geography of Latin America	X		X		X	
EV374	Middle East & Africa		X		X		X
EV377	Remote Sensing	X	X	X	X	X	X
EV378	Cartography	X		X		X	
EV379	Photogrammetry		X		X		X
EV380	Principles of Surveying	X		X		X	
EV384	Geography of North America	X		X		X	
EV385	Introduction to Env Engineering		X		X		X
EV386	Geography of Europe		X		X		X
EV387	Meteorology		X		X		X
EV388A	Physical Geology	X	X	X	X	X	X
EV388B	Geomorphology		X		X		X
EV389B	Climatology	X		X		X	
EV390B	Urban Geography		X		X		X
EV391A	Land Use Plan & Management	X		X		X	
EV391B	Environmental Geology		X		X		X
EV394	Hydrogeology	X		X		X	
EV396	Environmental Biological Sys.		X		X		X
EV397	Air Pollution Engineering		X		X		X
EV398	Geographic Information Systems		X		X		X
EV399A	Geology Field Course	AIAD – STAP Period					
EV400	Env. Engineering Seminar						X
EV401	Physical and Chemical Treatment		X		X		X
EV402	Biochemical Treatment	X		X		X	
EV450	Environmental Decision Making	X		X		X	
EV471	Ecology	X		X		X	
EV477	Advanced Remote Sensing		X		X		X
EV478	Geospatial Military Operations		X		X		X
EV480	Honors Seminar in Geography	X		X		X	
EV481	Water Resources	X		X		X	

EV482	Military Geography		X		X		X
EV483	Colloquium in Geography	X					
EV485	Special Topics: Geography and the Environment	X	X	X	X	X	X
Course #	Course Title	091	092	101	102	111	112
EV486	Environmental Geography	X		X		X	
EV487	Environmental Security		X		X		X
EV488	Solid and Hazardous Waste		X		X		X
EV489A	Advanced Individual Study I	X	X	X	X	X	X
EV489B	Advanced Individual Study II		X		X		X
EV490	Advanced Env Process Design		X		X		X
EV498	Advanced GIS	X		X		X	
XS391	Principles and Applications of Environmental Chemistry	X		X		X	

Cadet Angor and MAJ Irmischer collecting Geospatial Intelligence Video in the Panamanian jungle.



Working hard with LTC Fleming before his deployment to the Afghan Military Academy in Kabul.

COURSE DESCRIPTIONS

EV203	PHYSICAL GEOGRAPHY
	3.0 Credit Hours (BS=2.0, ES=1.0); Prerequisite: MS102

SCOPE: Physical Geography is a core course provides cadets with a fundamental understanding of scientific principles and processes of earth science, meteorology, climatology, geomorphology and environmental systems, as well as an introduction to cultural geography. Further, the course furnishes cadets with the technical skills - digital terrain analysis, image interpretation and spectral analysis, remote sensing, global positioning system, geographic information systems cartography - to delineate the geographic distribution of landforms, weather, climate, and culture systems; and evaluate their potential impact on military operations. Lessons are reinforced by extensive use of in- and out-of-class practical exercises, terrain walks and computer exercises to demonstrate the interrelationship between physical and human systems, and their impact on the environment. Historical vignettes are employed to demonstrate how the factors of weather, climate, terrain, soils, vegetation and culture are important, cogent and frequently decisive in military operations.

LESSONS: 36 @ 55 min (2.5 Att/wk)

LABS: 4 @ 55 min

SPECIAL REQUIREMENTS: None .

EV300	ENVIRONMENTAL SCIENCE
	3.0 Credit Hours (BS=1.0, ES=1.5, ED=0.5); Prerequisite: EV203; Disqualifier: EV301, EV390A

SCOPE As the introductory course to the Environmental Engineering Sequence, EV300 provides the cadet with a broad understanding of current global and local environmental issues. It specifically focuses on natural ecosystems processes, the effects of pollution on human health and how the level of risk associated with this pollution is assessed, the environmental effects of energy use, and air pollution concerns such as global climate change, acid rain, and smog. Discussions of anthropogenic influences are conducted with consideration of social, economic, technological and political impacts. Cadets learn to evaluate literature on environmental issues through readings and interactive debates. A course project applying the scientific method to evaluate a current environmental problem provides an opportunity to tie multiple course topics with an in-depth study of an issue of interest.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: Design and conduct an environmental study.

EV301	ENVIRONMENTAL SCIENCE FOR ENGINEERS AND SCIENTISTS
	3.0 Credit Hours (BS=1.0, ES=1.5, ED=0.5); Prerequisites: EV203; Disqualifier: EV300, EV390A

SCOPE This course is similar to EV300 except that the context of discussion in EV301 is appropriate for cadets who have elected to major in science or engineering. EV301 provides the cadet with a broad understanding of current global and local environmental issues. It specifically focuses on natural ecosystems processes, the effects of pollution on human health and how the level of risk associated with this pollution is assessed, the environmental effects of energy use, and air pollution concerns such as global climate change, acid rain, and smog. Discussions of anthropogenic influences are conducted with consideration of social, economic, technological and political impacts. Cadets learn to evaluate literature on environmental issues through readings and interactive debates. A course project applying the scientific method to evaluate a current environmental problem provides an opportunity to tie multiple course topics with an in-depth study of an issue of interest.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: 1 Field Trip, 2 In-class labs

SPECIAL REQUIREMENTS: Design and conduct an environmental study.

EV303	FOUNDATIONS IN GEOGRAPHY
	3.0 Credit Hours; Prerequisite: None

SCOPE: This course presents the basic concepts, theories and methods of inquiry in the discipline of geography as a foundation for advanced study in human geography, environmental geography, or geospatial information science. The course includes models and concepts from the many sub-disciplinary (systematic) areas of geography to include cultural, historical, economic, urban, political and military geography. The application of concepts to real-world issues is emphasized. Research skills and techniques used by professional geographers are presented. Cadets use these approaches to spatially analyze and map the distribution of human and environmental phenomena. Several short papers will be assigned.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: Requires Department Head approval for all cadets not selecting a major in the Department of Geography & Environmental Engineering.

EV350	ENVIRONMENTAL TECHNOLOGIES
Env CES Course	3.0 Credit Hours (BS= 0.0, ES=2.0, ED=1.0), Prerequisites: CH102 or CH152, MA205 or MA255, and EV300 or EV301, Disqualifiers: EV385

SCOPE: This course builds on environmental issues introduced in EV300 and further explores environmental engineering from a unit process and materials balance approach. Analyzing water (transport, quality, drinking water treatment, and wastewater treatment); air (transport, quality, and pollutant minimization); and pollutant management (solid and hazardous wastes), the cadet is exposed to the breadth of the environmental discipline. A laboratory experience is integral to the course. In the laboratory, physical, chemical, and biological quality are discussed and measured. An introductory environmental engineering design project on river water quality is developed within the semester.

LESSONS: 36 @ 55 min (2.5 Att/wk)

LABS: 6 @ 120 min

SPECIAL REQUIREMENTS: One design project.

EV365	GEOGRAPHY OF GLOBAL CULTURES
	3.0 Credit Hours; Prerequisite: EV203

SCOPE: This course provides the geographic foundation for study in interdisciplinary and management academic areas. Contemporary regions of the world political map serve as the framework within which geographic concepts and analytical techniques are applied. Each cadet will develop an awareness of the diversity and distribution of people on the earth, human organization and exploitation of territory, and interactions among culture groups. Particular emphasis is placed on social institutions, their impact on economic development, and the subsequent identification and analysis of developed, emerging, and underdeveloped states.

LESSONS: 38 @ 55 min (2.5 Att/wk)

LABS: 2 @ 55 min

SPECIAL REQUIREMENTS: One research paper.

EV371	GEOGRAPHY OF RUSSIA
	3.0 Credit Hours; Prerequisite: EV365

SCOPE: This course examines the political, economic, and cultural geography of Russia and its adjacent neighbors; the Baltic States, East Central European region, Transcaucasus, and Central Asia. Topics covered include: the Commonwealth of Independent States; ecocide in the former Soviet Union; disposition of the former Soviet military; and ethnic rivalries. The objective of the course is to provide the student with an understanding of the recent past of the traditional Soviet system in order to understand, as well as geographically evaluate, Russia's and the other former republics' situation today.

LESSONS: 40 @ 55 min (2.5 Att/wk); 1 field trip

LABS: None

SPECIAL REQUIREMENTS: One oral report; compensatory time provided.

EV372	GEOGRAPHY OF ASIA
	3.0 Credit Hours; Prerequisite: EV365

SCOPE: The course studies the physical and cultural environment of Asia with emphasis on those geographic elements related to the region's progress, developing states, and emerging world and regional powers. Topics covered include a consideration of the physical and resource base, environmental and cultural factors, spatial organization of agricultural and industrial economies, population patterns and problems, and examination of the realm's several major subregions.

LESSONS: 40 @ 55 min (2.5 Att/wk); 1 field trip

LABS: None

SPECIAL REQUIREMENTS: One written report and one oral presentation; compensatory time provided.

EV373	GEOGRAPHY OF LATIN AMERICA
	3.0 Credit Hours; Prerequisite: EV365

SCOPE: This course studies the physical and cultural landscape of Latin America, giving special treatment to the diversity and cultural identity of the region. Topics covered include a historical geography of the region, including Pre-Columbian civilizations, Iberian, African, and European influences; the geography of transportation networks, agriculture, urbanization, and population. National boundaries, major landforms and climatic conditions are discussed to describe their effect on civilization. This course also investigates the historical relationship between the United States and Latin America, and covers recent U.S. military interventions in the region.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: One oral report, one research paper.

EV374	GEOGRAPHY OF THE MIDDLE EAST AND AFRICA
	3.0 Credit Hours; Prerequisite: EV365

SCOPE: The course examines Middle Eastern and African landscapes to include expressions of their dominant physical and cultural forms. The variety of Middle Eastern and African peoples are studied in a geographic context--tracing their origins, dispersal, spatial organization, the intrusion of alien cultures and the diversity of human use and resource exploitation of the land. Among issues examined are the distribution and strategic significance of critical mineral and energy resources, population and food disparities, nation-building programs and prospects, and regional development plans. The course concludes with study of the changing internal geographic patterns, extraregional spatial relationships, and geostrategic implications of East-West competition in these unstable regional environments.

LESSONS: 40 @ 55 min (2.5 Att/wk); 1 field trip

LABS: None

SPECIAL REQUIREMENTS: One oral presentation supported by a written report; compensatory time provided.

EV377	REMOTE SENSING
	3.0 Credit Hours (ES=2.5, ED=0.5); Prerequisite: EV203, IT105 or equivalent knowledge

SCOPE: Remote Sensing is learning about something without touching it--the most obvious example being the use of satellites to study the Earth. EV377, a techniques course applicable to both the humanities and engineering, studies how and what types of information can be carried by the electromagnetic spectrum. Students enjoy a wide range of practical exercises which introduce them to several remote sensing systems to include conventional and color infrared photography, multispectral scanners, satellite imagery, thermal infrared, and radar. The capstone exercise offers each student the opportunity to perform real-time automated image classification using satellite data on his/her own microcomputer. The final few lessons of the course encompass the military airborne and spaceborne remote sensing platforms and national systems. The course focus is on applying remotely sensed data to solve current problems.

LESSONS: 32 @ 55 min (2.5 Att/wk)

LABS: 8 @ 55 min

SPECIAL REQUIREMENTS: None.

EV378	CARTOGRAPHY
	3.0 Credit Hours (ES=2.5, ED=0.5); Prerequisite: EV203, IT105 or equivalent knowledge

SCOPE: Cartography teaches the principles of cartographic communication and enables the student to apply map design principles along with computer mapping techniques to solve contemporary problems in geography, economics, international relations, and applied sciences. Cadets will study the basic cartographic design process and use mapping and analysis software in the Geographic Sciences Laboratory to produce topographic and thematic maps. A final course design project presents the opportunity for the cadets to demonstrate their ability to synthesize sound mapping principles.

LESSONS: 23 @ 55 min (2.5 Att/wk)

LABS: 17 @ 120 min

SPECIAL REQUIREMENTS: Course project included in lab periods.

EV379	PHOTOGRAMMETRY
	3.0 Credit Hours (BS=0.5, ES=2.5); Prerequisite: EV203, IT105 or equivalent knowledge

SCOPE: Photogrammetry, the art and science of making accurate measurements on photographs, is an important and fundamental discipline concerned with civilian and military mapping. Students, applying simple geometric principles to the photograph, determine object identity, size, spatial relationship, and position. An abundance of practical exercises, involving the use of sophisticated equipment, provide the opportunity to apply the fundamentals while arriving at solutions to real-world problems. An interesting field trip to a local mapping organization vividly displays how all these techniques may be blended to produce maps in the commercial business world.

LESSONS: 33 @ 55 min (2.5 Att/wk)

LABS: 7 @ 55 min

SPECIAL REQUIREMENTS: None.

EV380	PRINCIPLES OF SURVEYING
	3.5 Credit Hours (BS=0.5, ES=2.0, ED=0.5); Prerequisite: NONE

SCOPE: A framework for understanding and applying practical surveying methods is developed. Consideration of error theory and the concepts of precision and accuracy yields understanding of the probabilistic nature of measurements. The principles of differential leveling, taping, electronic distance measurement and angular measurement are studied and applied using state-of-the-art surveying equipment and software tools. Plane surveys are principally explored, although the fundamentals of geodetic surveys are also presented. Traverse, triangulation, trilateration, level networks and the proper adjustment of related measurements are examined. Control survey, land survey, topographic survey, horizontal and vertical curve design, computer-aided mapping and GIS applications are included. Extensive use of laboratory periods permits application of surveying fundamentals, methods and planning skills to actual field situations. The principles of the global positioning system are explored and applications in the Army and surveying are applied in the final lab exercise.

LESSONS: 21 @ 55 min (2.5 Att/wk)

LABS: 19 @ 120 min

SPECIAL REQUIREMENTS: None.

EV384	GEOGRAPHY OF NORTH AMERICA
	3.0 Credit Hours; Prerequisite: EV365

SCOPE: This course provides a regional geography of North America, with balanced coverage of the human and physical geography of the United States and Canada. Lectures are appropriately supplemented with movies, slides, and maps to facilitate understanding of important themes that are prevalent in various subregions.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: One oral report.

EV385	INTRODUCTION TO ENVIRONMENTAL ENGINEERING
	3.5 Credit Hours (ES=2.5, ED=1.0); Prerequisite: CH102, CH152, MA205, MA255; Corequisites: PH202/PH204, PH252/ PH254 Disqualifier: EV350, EV385B

SCOPE: This course introduces cadets to the study of environmental engineering from a unit process and a materials balance approach. The focus is design-oriented problem solving to protect human health and the health of ecosystems using fundamental physical, chemical, and biological processes. The concept and calculation of risk is introduced as a key factor in environmental decision-making. Through the study of contaminant removal from water and air to integrated management techniques for solid/hazardous wastes and ionizing radiation, the cadet is exposed to the breadth of the discipline. In the laboratory, the science behind physical, chemical, and biological processes are applied to the engineering discipline. A military oriented design problem allows application of engineered solutions to topical water and air quality issues.

LESSONS: 40 @ 55 min (2.5 Att/wk); 2 field trips

LABS: 6 @ 120 min

SPECIAL REQUIREMENTS: Course design project.

EV386	GEOGRAPHY OF EUROPE
	3.0 Credit Hours; Prerequisite: EV365 Disqualifier: EV386

SCOPE: The course examines European cultural landscapes, focusing on the environmental and cultural diversity exhibited among the states of modern Europe. Nationalism and the territorial imperative, long recognized as major forces in Europe, are studied from a geographic perspective to include patterns and processes of both regional continuity and change. Emphasis is given to the rapidly developing urbanization and mutual interdependence among countries of Western Europe. West and East European agricultural/industrial resource bases and developmental strategies are compared and contrasted. Specific topics are tailored to current issues and include regional conflict, economic development and trade, and problems of energy and the environment. This course concludes with a study of contemporary European extraregional spatial relationships with other major world culture regions.

LESSONS: 40 @ 55 min (2.5 Att/wk); 1 field trip

LABS: None

SPECIAL REQUIREMENTS: One research paper, one oral report.; compensatory time provided.

EV387	METEOROLOGY
	3.0 Credit Hours; Prerequisite: EV203

SCOPE: This course introduces meteorological processes, systems, and patterns with emphasis on spatial distributions. The course begins with a comprehensive look at the structure of the atmosphere to include the energy budget, heat transfer mechanisms, as well as an examination of daily and seasonal patterns of temperature. A thorough look at atmospheric moisture and stability precedes a study of cloud and precipitation processes followed by a study of the atmosphere in motion, namely air pressure, governing forces, winds, small and local-scale wind systems and the general circulation of the planet. Specific phenomena are then examined, including mid-latitude cyclones, thunderstorms/lightning, tornadoes, severe thunderstorms, hurricanes, air pollution, and a brief look at climate and climate change. The end of the course focuses on the art and science of weather forecasting and its applicability to military operations. In-class labs.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: Term project.

EV388A	PHYSICAL GEOLOGY
	3.0 Credit Hours (BS=1.0, ES=1.5, ED=0.5); Prerequisite: EV203; Disqualifier: EV399A

SCOPE: Primary emphasis in the course is placed on understanding and interpreting the significant geologic processes that act on and within the earth. Topics studied include the formation and identification of minerals and rocks, plate tectonics, rock structures, geologic mapping, and elements of economic geology. Field trips are conducted to illustrate concepts and processes discussed in class. The course is capstoned by a geologic design that uses an interactive geologic exploration computer simulation. The cadet designs a geologic exploration project and develops a program for remediation of an environmental problem.

LESSONS: 30 @ 55 min (2.5 Att/wk); 2 field trips

LABS: 10 @ 110 min

SPECIAL REQUIREMENTS: One design project; compensatory time provided.

EV394	HYDROGEOLOGY
	3.5 Credit Hours (ES=2.5, ED=1.0); Prerequisite: EV203

SCOPE: Hydrogeology covers the principles governing the movement of subterranean water (groundwater), the interaction of this water with a porous medium, and the transport of chemical constituents (contaminants) by this flow. This course explores traditional background elements of hydraulic engineering, well drawdown, engineering applications, and the use of computers to model groundwater flow and contaminant plumes. All course material will contribute to modeling a specific situation and developing recommendations for cleaning up contaminated groundwater. Offered only in the fall semester.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: 12 @ 55 min

SPECIAL REQUIREMENTS: One design problem and course project.

EV396	ENVIRONMENTAL BIOLOGICAL SYSTEMS
	3.5 Credit Hours (BS=1.0, ES=2.5); Prerequisites: CH102 or CH152, EV203 and EV300 or EV301 or EV385

SCOPE: This course examines biology from a practical environmental engineering and environmental science perspective. The foci of the course are applied public health, microbiology and microbial energetics. Specific topics include the biological health issues associated with drinking water, microbial aspects of industrial and domestic waste treatment and protection or restoration of natural water bodies from environmental contaminants. Students are also introduced to medical geography and the spatial biological health issues associated with a deployment. Laboratory exercises are used to introduce the student to water quality analyses and practices commonly used in the fields of environmental engineering and the environmental sciences.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: 12 @ 55 min (Double Hour)

SPECIAL REQUIREMENTS: None.

EV397	AIR POLLUTION ENGINEERING
	3.0 Credit Hours (BS=0.0, ES=2.5, ED=0.5); Prerequisite: EV203

SCOPE: This course employs a design approach to air pollution control. It begins by defining air pollution problems, to include pollutant types, sources, legislation, and effects on both local and global scales. The course then examines the design of various means of controlling particulate and gaseous air pollution from both mobile and stationary sources. Finally, students study the link between meteorology and air pollution, as well as pollutant dispersion modeling in the atmosphere. The culminating course project involves a numerical approach to dispersion modeling that incorporates modeling and solution optimization.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: In-class labs

SPECIAL REQUIREMENTS: None.

EV398	GEOGRAPHIC INFORMATION SYSTEMS
	3.0 Credit Hours (ES=2.0, ED=1.0); Prerequisites: EV377 or EV378, or permission of the Head of the Department of Geography and Environmental Engineering

SCOPE: Geographic Information Systems are hardware/software systems that permit the input, storage, retrieval, manipulation, analysis, and display of geocoded data. Used by environmentalists, engineers, land-use planners, architects, managers of large land holdings, and the military, these highly- intricate "decision support" systems assist managers in answering important "what if" questions. Using digitizers and microcomputers students will build a geocoded database and solve "real-world" problems.

LESSONS: 33 @ 55 min (2.5 Att/wk)

LABS: 7 @ 55 min

SPECIAL REQUIREMENTS: Short oral reports, one database design; compensatory time provided.

EV399A	GEOLOGY FIELD COURSE
	3.0 Credit Hours (BS=1.5, ES=1.5, ED=0.0); Prerequisite: EV203; Disqualifier: EV388A

SCOPE: The geology field course is a three-week long summer Individual Advanced Development Program. It is taught in the Rocky Mountain region of the western United States. Geologic concepts are presented in a classroom setting and supplemented with laboratory exercises. The majority of the course, however, is conducted at actual geologic sites in the field where concepts are illustrated and expanded. The course provides the cadet with knowledge of and appreciation for the science of geology as well as practical experience in geologic mapping using remote sensing and GIS. Field trips to active mines and a Superfund site relate classroom learning to the real world.

LESSONS: Variable

LABS: Variable

SPECIAL REQUIREMENTS: TDY travel to the course location in the western USA; excursions to remote field locations; one graded geologic mapping exercise and engineering design. Offered as an Individual Academic Development (IAD) course.

EV400	ENVIRONMENTAL ENGINEERING SEMINAR
	1.0 Credit Hours; (BS=0.0, ES=0.5, ED=0.5) Co-requisite: EV490

SCOPE: This seminar will meet once each week and will include all first class cadets majoring in environmental engineering. The seminar topics will address a variety of fundamental engineering science, design, and professional practice topics including engineering ethics, economics, and licensing. Periodically, guest lecturers from the military, industrial, and academic communities will provide their perspective on these topics.

LESSONS: 13 @ 55min (1.0 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: None.

EV401	PHYSICAL AND CHEMICAL TREATMENT
	3.5 Credit Hours; (ES=2.0, ED=1.5); Prerequisite: XS391; Corequisite: ME311

SCOPE: This course takes a process approach to environmental engineering using engineering science and design of drinking water treatment systems as the primary foci. Building upon concepts gained in environmental chemistry, cadets study physical and chemical processes used in environmental engineering. Discussion includes the theories behind these processes and the design procedures involved in their application. The health implications associated with drinking water and water treatment in contingency operations and applicable occupational health issues are discussed during the course. Cadets develop comprehensive concept design of drinking water treatment processes. While the focus of the course is drinking water treatment, the processes developed are also applicable to wastewater treatment, groundwater remediation, air pollution control, and the treatment of solid and hazardous wastes.

LESSONS: 40 @ 55 min (2.5 Att/wk); 1 field trip

LABS: 12 @ 55 minutes (Double Hour)

SPECIAL REQUIREMENTS: One term project.

EV402	BIOCHEMICAL TREATMENT
	3.5 Credit Hours (ES=2.0, ED=1.5); Prerequisites: EV396, ME311, ME362, EM362A

SCOPE: This course provides cadets with the opportunity to apply the principles of microbiology to the protection and improvement of the environment. This course builds on the concepts learned in EV396, Environmental Biological Systems, and directly applies those concepts to the treatment of wastewater, removal of nutrients from wastewater, anaerobic digestion, bioremediation, industrial waste treatment, and emerging applications of biological treatment and modeling. A comprehensive, multi-step design project serves as the design experience for this course. Offered only in the spring semester.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: 7 x 120 minutes

SPECIAL REQUIREMENTS: Engineering design project with a written report.

EV450	ENVIRONMENTAL DECISION MAKING
Env CES Course	3.0 Credit Hours; (BS=0.0, ES=2.0, ED=1.0); Prerequisites: EV350 and standing as a First Class Cadet; Disqualifier: EV481

SCOPE: This course is the third in a three-course sequence and is concerned with the balance of engineered solutions with economic, socio-cultural, political, and ecological considerations evaluated during a decision-making process. Using management of water resources as a teaching model, the realities of decision-making and policy development for all areas of engineering, and particularly environmental engineering, are examined. The course begins with instruction on the tools available to water resource managers, to include both structural (engineered) and non-structural approaches to solve water resource problems. Elements of engineering design and the design process are introduced as well as methods of conducting tradeoff analyses. The course makes use of case studies of current water resource projects and includes a term project. Visiting speakers are employed to present views of government and concerned public interest groups.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: Written and oral research reports on a water resources project.

EV471	ECOLOGY
	3.0 Credit Hours; (BS=1.0, ES=0.5, ED=0.0); Prerequisites: CH385 or CH375 EV300 or EV301, EV350 or EV385B

SCOPE: This course examines ecosystems through the study of ecological principles related to an organism's relationship to its environment, population dynamics, species interactions, and community and ecosystem level dynamics. The fundamental influences of energy flow and material cycling are emphasized throughout as well as the role of surface water and watersheds within ecosystems. The course includes several field trips, which lead to a culminating term project designed to integrate previously acquired interdisciplinary environmental science technical skills and ecological principles.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: In-class labs and field trips

SPECIAL REQUIREMENTS: Term paper examining aspects of one of the world's ecosystems. Compensatory time provided.

EV477	ADVANCED REMOTE SENSING
	3.0 Credit Hours; (ES=2.0, ED=1.0); Prerequisites: EV203, EV377

SCOPE: This course examines advanced remote sensing theory and digital image processing techniques suitable for the processing of remotely sensed data. Emphasis is on the processing and analysis of state-of-the-art spatial and spectral resolution data gathered by airborne and satellite sensors. Topics covered include geometric and radiometric image rectification; registration and resampling techniques, image enhancements, data merging, image segmentation, and automated feature extraction. A wide range of practical exercises and in-class laboratory assignments provides hands-on experience with a variety of remotely sensed imagery from multi-spectral to hyper-spectral data. The course culminates with a capstone term project that allows students to apply digital image processing skills to a scientific problem.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: In-class labs

SPECIAL REQUIREMENTS: Term project; compensatory time provided.

EV478	GEOSPATIAL MILITARY OPERATIONS
	3.0 Credit Hours; (ES=2.0, ED=0.0); Prerequisites: EV203

SCOPE: This course is designed to teach the most current state of geospatial operations in the military. It is built to provide the student an improved understanding of the cornerstone to the digital force - the "common operational picture" or COP. This course is divided into five major blocks of instruction: (1) a linked discussion of geospatial operations' development, organizations and data systems; (2) the geographic information system (GIS) as a military tool - system input, management, data analysis and production outputs; (3) Army geospatial operations in the garrison environment; (4) Army geospatial operations in combat environments; and (5) geospatial operations for joint/coalition forces. The course includes several relevant practical exercises and laboratories, a field trip, guest lectures and one panel discussion. Due to the currency of the material discussed a secret security clearance is required for all participants.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None.

SPECIAL REQUIREMENTS: None

EV480	HONORS SEMINAR IN GEOGRAPHY
	3.0 Credit Hours; Must be selected for participation in the Honors Program Prerequisite: EV203

SCOPE: This course will examine major research initiatives in the discipline and delineate their data requirements. The primary objective of this course is to identify and outline the senior thesis, which is the culminating event for the honors program. Hence, cadets participating in this course will explore research methods and data sources used by geographers, conduct a critical analysis of seminal literature in the field, define a research problem, identify and evaluate data sources, and assemble a research proposal. The final product of this course will be a written research proposal that will define the senior thesis (written during EV489B). The cadet will make a formal presentation of this proposal to senior geography faculty. The course is conducted in a seminar and one-and-one format. Lessons and labs are established by consultation between the cadet and faculty advisor.

LESSONS AND LABS: 40 @ 55 min. (2.5 Att/wk).

SPECIAL REQUIREMENTS: None.

EV481	WATER RESOURCES PLANNING AND DESIGN
	3.0 Credit Hours; (ES=2.0, ED=1.0); Prerequisites: Standing as a First Class Cadet; Disqualifiers: EV450

SCOPE: The course is concerned with the effective use of water as a manageable natural resource and it begins with discussion concerning the varied uses of water and the structural (engineered) and non-structural approaches available to meet these needs. The bulk of the course is concerned with assessment of the impacts of various water resource development activities on the economic, socio-cultural and ecological sectors of the environment. Methods for conducting tradeoff analyses among the engineered and environmental aspects of projects are developed and applied in a term project. The course makes use of case studies of current water resource projects and includes visiting speakers to present views from government and public interest groups. Offered only in the fall semester.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: Written and oral research reports on a water resources project.

EV482	MILITARY GEOGRAPHY
	3.0 Credit Hours; Prerequisite: EV203

SCOPE: Military history is replete with examples of the influence of terrain, weather, climate and the cultural landscape on combat. The problems of war and every aspect of any military enterprise are immutably linked to geography. This course examines those links. Wars are fought to gain control over land, resources and peoples of the world. More recently, military undertakings by this nation have incorporated a wide range of Operations Other Than War (OOTW). Notwithstanding its purpose, the conduct of a military endeavor is conditioned by the character of the area of operations -- *the military operating environment*. This course focuses on the synergy between geography and military operations, and emphasizes the development of a geographic methodology for systematic analyses of military operating environments. Case studies and guest lectures are used to examine the impact of weather, climate, terrain and the cultural landscape on military operations from the tactical to strategic level. Further, the course investigates the subjects of geopolitics, geostrategy and strategic choke points, as well as environmental security and military lands.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: One written research project.

EV485	SPECIAL TOPICS IN GEOGRAPHY AND THE ENVIRONMENT
	3.0 Credit Hours; Prerequisite: EV203, and permission of the professor

SCOPE: This course explores an advanced topic in Human and Regional Geography, Environmental Geography, Environmental Science, Environmental Engineering, or Geospatial Information Science. Specific subject matter will vary with the expertise of the visiting professor or senior faculty member conducting the course.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: As specified by instructor.

EV486	ENVIRONMENTAL GEOGRAPHY
	3.0 Credit Hours; Prerequisite: EV203, EV365

SCOPE: Whereas physical geographers focus on the Earth's surface and atmosphere, and human geographers concentrate on the spatial aspect of human activities, environmental geographers are interested in both how people adapt to specific environments and how they alter those environments through human activities. To understand these interactions and their implications, environmental geographers must fully appreciate natural processes and landform development within and on the surface of the earth, as well as the implications of human intervention in the natural system.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: None.

EV487	ENVIRONMENTAL SECURITY
	3.0 Credit Hours; Prerequisite: Standing as a First Class Cadet

SCOPE: This interdisciplinary seminar uses Environmental Security in a case study approach to study environmental issues potentially affecting U.S. National Security. Cadets will explore environmental security topics such as water, natural resource shortages, energy use and dependency, global climate change using an interdisciplinary approach from social, political, economic, and scientific-technological perspectives. The course culminates on a student team analysis of a developing country in terms of environmental security issues and the related US national security interests. The final project includes a formal brief and written paper.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: The final project includes a formal brief and written report.

EV488	SOLID AND HAZARDOUS WASTE MANAGEMENT AND REMEDIATION
	3.0 Credit Hours (ES=1.0, ED=2.0); Prerequisites: EV394 and EV402

SCOPE: This course examines the treatment, storage and disposal of solid and hazardous wastes. Both regulatory requirements and evolving technology associated with solving modern solid waste disposal problems are discussed. Processes for the investigation and remediation of contaminated waste sites are presented, along with design methodologies for solid and hazardous waste disposal systems. The course culminates in the application of hazardous waste engineering to the cleanup of a contaminated hazardous disposal site. Offered only in the spring semester.

LESSONS: 40 @ 55 min (2.5 Att/wk)

LABS: None

SPECIAL REQUIREMENTS: One design project and a research paper.

EV489A	ADVANCED INDIVIDUAL STUDY I
	3.0 Credit Hours; Prerequisite: Permission Required

SCOPE: The course is an individually supervised research and study program designed to provide cadets with the opportunity to pursue advanced topics within their discipline. The cadet prepares a research and study proposal setting forth the objectives, scope, and anticipated accomplishments of his/her efforts for the semester. If required for a specific degree, the proposal will include a justification for engineering science or design credit. Once approved, the proposal serves as a basis for the cadet's research and study program. Progress in research reports and observations by the faculty advisor form the basis for grades. The program for each cadet will culminate in one of two outcomes: 1) a discipline-appropriate written product (e.g., senior thesis or design project) with oral defense; or 2) enrollment in EV489B for the completion of the research and study program during the second academic term. Lessons and labs are established by consultation between the cadet and faculty advisor.

LESSONS and LABS: Established by consultation between cadet and faculty advisor.

SPECIAL REQUIREMENTS: As determined by faculty advisor.

EV489B	ADVANCED INDIVIDUAL STUDY II
	3.0 Credit Hours; Prerequisite: Permission Required

SCOPE: The course is an individually supervised research and study program designed to provide cadets with the opportunity to pursue advanced topics within their discipline. The cadet uses a research and study proposal setting forth the objectives, scope, and anticipated accomplishments of his/her efforts for the semester. If required for a specific degree, the proposal will include a justification for engineering science or design credit. The proposal serves as a basis for the cadet's research and study program. Progress in research reports and observations by the faculty advisor form the basis for grades. The program for each cadet will culminate in a discipline-appropriate written product (e.g., senior thesis or design project) with oral defense. Lessons and labs are established by consultation between the cadet and faculty advisor.

LESSONS and LABS: Established by consultation between cadet and faculty advisor.

SPECIAL REQUIREMENTS: As determined by faculty advisor.

EV490	ADVANCED ENVIRONMENTAL PROCESS DESIGN
	3.5 Credit Hours (ES=1.5, ED=2.0); Prerequisites: EV301 or EV385B; Standing as a First Class Cadet in Environmental Engineering or Permission of the Department Head

SCOPE: This is the final design course for the major in environmental engineering. It exposes cadets to the complete design experience including project management, work scheduling, and development of plans and specifications. The course centers on a senior design project that requires the employment of concepts in engineering design to produce a 35% product for an actual customer. Working in small teams, cadets examine projects through the feasibility and concept design phases to evolve and develop concepts that are not only technically feasible, but economically, socially, and politically acceptable. The evaluation of alternatives employs trade-off analysis and the use of multi-attribute decision models. The final product includes a formal oral briefing and a written feasibility study. In addition to project management, course lectures cover engineering ethics, engineering economics, and topical coverage of fundamental engineering topics relevant to the problems under study. The course concludes with a field data, collection exercise where cadets develop collection protocols and logistical requirements and then execute the data collection plan and results analysis.

LESSONS: 40 @ 55 min a (2.5 Att/wk)

LABS: 12 @ 55 minutes (Double Hour)

SPECIAL REQUIREMENTS: Two design problems. First class cadets only.

EV498	ADVANCED GEOGRAPHIC INFORMATION SCIENCES
	3.0 Credit Hours (ES=2.0, ED=1.0); Prerequisite: EV398

SCOPE: This course examines the analytical methods used in Geographic Information systems (GIS) and provides cadets with a clear understanding of the theoretical/conceptual aspects of algorithms found in GIS software. Lectures focus on the underlying mathematical basis for widely used spatial analytical techniques. Among the topics covered are neighborhood operations, map transformation, spatial interpolation, terrain analysis, network analysis, spatial overlay, fuzzy sets, neural networks, and expert systems. In-class practical exercises and laboratory assignments complement the lectures by providing hands-on experience with a variety of advanced analytical techniques. The course culminates with a capstone term project that allows cadets to identify a scientific problem, formulate a hypothesis, use GIS to solve the problem, and then present the results of their analysis.

LESSONS: 30 @ 55 min (2.5 Att/wk)

LABS: 10 @ 55 Min

SPECIAL REQUIREMENTS: Term Project. Compensatory time provided.

XS391	PRINCIPLES AND APPLICATIONS OF ENVIRONMENTAL CHEMISTRY
	3.0 Credit Hours (BS=1.0, ES=2.0); Prerequisites: CH102 or CH 152, MA103 or MA153, and MA104 or MA154

SCOPE: This course examines chemical interactions of pollutants in air, soil, and water systems. The focus of the course is problem solving with the following topic coverage: approximately 80% applied aquatic chemistry, 15% environmental organic chemistry, and 5% applied analytical chemistry. Specific topics include the chemistry applied in drinking water production and the chemical aspects of industrial and hazardous waste treatment. The fate of heavy metals and organic contaminants in soil and aqueous systems is also discussed.

LESSONS: 40 @ 55 min a (2.5 Att/wk)

LABS: One in-class lab

SPECIAL REQUIREMENTS: None.



Cadets Ben Hansen, Katie Pullian, Nikki Harrell, Trey Wheeler, Andy McClellan, and Jason Palmroy hang out at Canyon DeChelly on the Four Corners IAD.



Cadet Nick Lewis professing his true devotion to The King



Cadets complete their horizontal curve layout lab for EV380 (Principles of Surveying).



EV203 Cadets display their immense geographical knowledge, identifying West Point's location on a globe.



The Dirt Band rocks the Firstie Club in 2008. From left to right: Dr. Malinowski, Dr. Butkus, Dr. Johnson, MAJ Didier, and Dr. Zinsser.



Cadets Andres Pazmin, Russ Cowley, Will Brant, Ashley Morgan, Melissa Magana, and Colin Jones with a close-up view of the Pacaya volcano.



The EV388B Geomorphology class pauses for a class photo on top of Schunnemunk Mountain in April 08.



Cadets Michael Moore, Brad Vass, Justin Lopez, and Craig Aman unwind with LTC Mark Smith on the crater of Mount Vesuvius, during their IAD to Naples and Rome Italy, June 2008.

DEPARTMENT FACULTY

PERMANENT MILITARY FACULTY

COLONEL EUGENE J. PALKA

Professor and Head, Department of
Geography and Environmental Engineering

Ph.D., University of North Carolina at Chapel Hill,
1995

M.A., Ohio University, 1986

B.S., USMA, West Point, 1978

Deputy Head, D/G&EnE, USMA, 2002 – 2006
C-5, 10th Mountain Division, CJTF-Afghanistan,
2002

Geography Program Director, D/G&EnE, USMA,
1998-2002

Deputy Commander, 16th Cavalry Regiment, FT
Knox, KY, 1997-98

Battalion Commander, 1-46th Infantry Regiment, FT
Knox, KY, 1995-97

Battalion XO, 5-9th Infantry Regiment, FT Wainwright, AK, 1991-92

G3, Chief of Opns, 6th Infantry Division (Light), FT Wainwright, AK, 1990-91

Battalion S3, 1-501st Infantry, 101st ABN Division, FT Campbell, KY, 1983-84

Company Commander, A/1-501st IN, 101st ABN Division, FT Campbell, KY, 1981-83

Company XO, A/1-501st IN, 101st ABN Division, FT Campbell, KY, 1980-81

Aide de Camp, HHC, 101st ABN Division, FT Campbell, KY, 1979-80

Platoon Leader, B/2-502nd IN, 101st ABN Div., FT Campbell, KY, 1978-79



COL Palka is an Infantryman, whose military assignments include nearly six years with the 101st Airborne Division, and more than two years with the 6th Infantry Division (Light) in Alaska. More recently, COL Palka commanded the 1st Battalion, 46th Infantry Regiment at Fort Knox, and subsequently served as the Deputy Commander of the 16th Cavalry Regiment. From February to April 2002, he was assigned to the 10th Mountain Division and deployed to Afghanistan to serve as the C-5, Future Plans Officer, for the Coalition Joint Task Force, CJTF-Afghanistan. COL Palka is an environmental geographer, with expertise in military and cultural geography, and regional expertise in North America and Latin America. He has co-authored or authored 14 books, numerous book chapters, and dozens of professional articles on a wide range of military and geographic topics. He has taught many of the geography courses offered in the department. He currently rotates his teaching assignments between Geography of North America, Urban Geography, Geography of Latin America, and Geography of Global Cultures. ★

COL JASON C. LYNCH

Academy Professor and Program Director,
Environmental Engineering

Ph.D., University of Florida (Environmental
Engineering Sciences) 2002
M.E., University of Florida (Environmental
Engineering Sciences) 1993
B.S., United States Military Academy (Chemistry
Concentration) 1984
P.E., Commonwealth of Virginia 1996
DEE, American Academy of Environmental Engineers
2004



Environmental Program Academy Professor,
D/G&EnE, USMA, 2002-2006
Deputy Regimental Rear Commander, 2nd ACR,
FT Polk, LA 1997-98
Regimental Chemical Officer, S1, XO, & LNO, 2nd ACR, FT Polk, LA 1996-97
Instructor & Assistant Professor, D/G7EnE, USMA 1993-96
System Manager, Program Management NBC Defense Systems, Aberdeen Proving Grounds, MD
1990-91
Company Commander, 164th Chemical Company (Smoke Generator), I Corps, FT Lewis, WA
1988-89
Division Chemical NBC Element Director, 9th Infantry Division, FT Lewis, WA 1987-88
Brigade Chemical Officer, 9th Cavalry Brigade, Air Attack, 9th Infantry Division, FT Lewis, WA
1986-87
Platoon Leader and Executive Officer, 4th Chemical Company (Dual Purpose), 2nd Infantry
Division, Camp Casey, Korea 1985-86

COL Lynch is a Chemical Corps officer who has served in various command and staff positions in predominantly light infantry and cavalry units. He has been fortunate in the amount of time he was able to spend actually in Chemical Corps units with experience in reconnaissance, smoke generation, and decontamination. He also served an acquisition corps assignment working radiac instrument research, development, and testing. COL Lynch is an environmental engineer with research interests in field investigation and remediation of hazardous materials as well as environmental policy and management. He is currently involved in national level service with the Accreditation Board of Engineering and Technology (ABET) and the National Council of Examiners for Engineering and Surveying (NCEES). He has taught most of the environmental courses offered in the department. This year he will teach EV394, Hydrogeology, EV450, Environmental Decision-Making, EV397 Air Pollution Engineering, and EV488, Solid & Hazardous Waste Treatment & Remediation. ★

COL LAUREL J. HUMMEL

Associate Professor and Program Director,
Geography

Ph.D., University of Colorado, 2002
M.S.S., US Army War College, 2006
M.Ed., University of Alaska Anchorage, 1999
M.S., Pennsylvania State University, 1991
B.S., United States Military Academy, 1982

Chief, Operations Intelligence Division and
Joint Intelligence Support Element,
Intelligence Directorate, Alaskan Command,
PACOM, Elmendorf Air Force Base, Alaska,
1996-2000

S-3, 102d Military Intelligence Battalion, 2d
Infantry Division, ROK, 1995-1996

Instructor and Assistant Professor, Department of
Geography and Environmental Engineering,
USMA, 1991-1994

Company Commander, S-1, and S-2, 224th Military Intelligence Battalion (Aerial Exploitation),
525th Military Intelligence Brigade (ABN), Hunter Army Airfield, Georgia, 1986-1989

Chief, Intelligence Plans and Production, and Tactical Intelligence Officer, 24th Infantry Division
G-2, Fort Stewart, Georgia, 1985-1986

Platoon Leader and Company XO, 124th Military Intelligence Battalion, 24th Infantry Division,
Fort Stewart, Georgia, 1983-1985



COL Hummel has spent the majority of her military career in the fields of tactical, imagery, and strategic intelligence, in Army field units and the joint arena. She is a graduate of the US Army War College, the US Army Command and General Staff College and is a Joint Service Officer. As a member of the USMA faculty, she has taught Physical Geography, Geography of Global Cultures, Geomorphology, Geography of North America, and the Honors Seminar in Geography. COL Hummel is primarily a human geographer with interests in landscape studies, geography in higher education, and environmental security and the formulation of national security policy. She has conducted research, lectured, and published across a diverse spectrum of interests, including: the US military's influence upon the cultural and environmental landscape, infusing geography in K-12 public education, population increase and regional instability in sub-Saharan Africa, gendered aspects of transformational leadership, and the patterns of decline and resurgence among small towns in Appalachia. As an Alaskan, COL Hummel maintains a regional interest in the geography of Alaska, and specifically the many effects of the militarization of Alaska on Alaskan demographics, development, and culture. ★

LTC STEVEN D. FLEMING

Academy Professor, Geospatial Information
Science

Ph.D., University of Georgia, 2004
M.A., Naval War College, 1999
M.A., University of Georgia, 1995
B.S., USMA, 1985

Academy Professor, Department of Geography and
Environmental Engineering, USMA, 2005-
Present

Advisor, National Military Academy - Afghanistan,
CFC-A, Kabul, Afghanistan, 2005

Academy Professor, Department of Geography and
Environmental Engineering, USMA, 2004-
2005



Assistant Division Air Defense Officer, 4th Infantry Division, Fort Hood, Texas 2000-2001

Battalion S-3, 1-44 ADA, 4th Infantry Division, Fort Hood, Texas 1999-2000

Aide-de-Camp to the Superintendent, USMA, 1997-1998

Instructor/Assistant Professor, Department of Geography and Environmental Engineering,
USMA, 1995-1998

Battery Commander, A/1-62 ADA, 25th Infantry Division, Schofield Barracks, Hawaii, 1992-
1993

Assistant Battalion S-3/Brigade Liaison Officer, 1-62 ADA, 25th Infantry Division, Schofield
Barracks, Hawaii, 1990-1992

Battalion S-1, 5-62 ADA, 11th ADA Brigade, Fort Bliss, Texas, 1988-1990

Assistant Battalion S-3, 5-62 ADA, 11th ADA Brigade, Fort Bliss, Texas, 1988

Platoon Leader, 5-62 ADA, 11th ADA Brigade, Fort Bliss, Texas, 1986-1988

Platoon Leader, 4-1 ADA, 11th ADA Brigade, Fort Bliss, Texas, 1985-1986

LTC Fleming is an Air Defense officer with command and staff experience in short-range air defense operations at the battalion, brigade and division levels. Academically, LTC Fleming specializes in geospatial information sciences with particular interest in large-scale mapping of coastal regions. He has taught EV203 (Physical Geography), EV377 (Remote Sensing), EV379 (Photogrammetry), EV380 (Surveying), EV485 (Advanced Topics in Geography and the Environment) and EV489B (Advanced Independent Study in GIS). LTC Fleming currently teaches EV203 (Physical Geography), EV377 (Remote Sensing) and EV478 (Military Geospatial Operations). ★

LTC MICHAEL D. HENDRICKS

Academy Professor, Geospatial Information
Science

Ph. D., University of Maine – Orono, 2004

M.S., University of South Carolina, 1994

B.S., University of Delaware, 1986

Battalion XO, 29th Engineer Battalion
(Topographic), Fort Shafter, HI 2000-2001

Geospatial Operations Officer & Detachment
Commander, 5th Planning and Control, U.S.
Army Pacific (USARPAC), Fort Shafter, HI
1999-2000

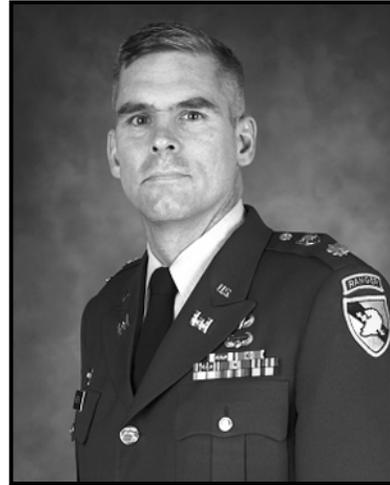
Instructor and Assistant Professor, Department of
Geography and Environmental Engineering
USMA, 1995-1998

Company Commander, A Co, 13th Engineer Battalion (Light), Fort Ord, CA, 1992-1993

Asst Operations Officer, 13th Engineer Battalion (Light), Fort Ord, CA, 1991-1992

Company XO, HQ Co, 317th Engineer Battalion (Mech), Germany, 1989-1990

Platoon Leader, A Co, 317th Engineer Battalion (Mech), Germany 1987-1989



LTC Hendricks is an Engineer officer specializing in Geospatial Information Operations. His recent military experience was with the 29th Engineer Battalion (Topographic) supporting PACOM, USARPAC, and numerous other organizations in the pacific region with mapping and geospatial intelligence. His research interests include; GIS education, supporting navigation and mobility analysis in dynamic and uncertain settings, and mobile mapping. In addition, he is involved in producing large-scale topographic maps for the sport of Orienteering. LTC Hendricks teaches EV398 (Geographic Information Systems) and EV498 (Advanced Geographic Information Systems). ★

LTC MARK A. SMITH

Assistant Professor, Environmental Science

Ph.D., University of Wisconsin, Madison, 2002
M.S., University of Wisconsin, Madison, 1989
B.S., Oregon State University, 1985

Theater Missile Defense Officer and Balkans
Reserve Force Desk Officer, Joint Force
Command, Naples, Italy, 2002-2005
S-3, 5-7 ADA, Hanau Germany, 2001-2002
Operations and Training Officer, Extended Air
Defense Task Force, Giessen, Germany, 1999-
2001

Team Leader, 432nd Civil Affairs Battalion, Green
Bay, WI, 1998-1999

Detachment Commander, 2/335th Bn, 4 Bde,
Madison, WI, 1997-1998

OIC, Observer Controller Lanes Team, 2/335th Bn, 4 Bde, Madison, WI, 1996-1997

Platoon Leader, Observer Controller Lanes Team, 2/335th Bn, 4 Bde, Madison, WI, 1994-1996
Force Air Defense Officer, Allied Command Europe Mobile Force Land and S-5, Wackernheim,
GE, 1991-1994

Platoon Leader, 5/3 ADA, Wackernheim, GE, 1990-1991

Platoon Leader, 3/5 ADA, Buedingen, GE, 1990



LTC Smith is an Air Defense officer with experience in a wide variety of assignments, to include joint and combined tours with NATO and European Union forces. LTC Smith has also served two combat tours to Iraq (Platoon Leader during DESERT STORM, and NATO LNO to Multi-National Corps Iraq in support of the NATO training Mission in Iraq). LTC Smith holds a joint PhD in Wildlife Ecology and Zoology from the University of Wisconsin-Madison. His dissertation research and interests are about integrating military training and wildlife on military lands. He teaches EV 203 (Physical Geography), EV 300 (Environmental Science), EV 301 (Environmental Science for Engineers and Scientists), and EV471 (Ecology).

LTC WILEY C. THOMPSON
Academy Professor, Geography

Ph.D., Oregon State University, 2008
M.S., Oregon State University, 1999
B.S., USMA, 1989

Academy Professor, D/G&Ene USMA,
2008-Present
Task Force XO, 12th Aviation Brigade Task
Force, Bagram, Afghanistan, 2006
Task Force Operations Officer, 3-158th Aviation
Task Force, Kandahar, Afghanistan, 2005
Battalion Operations Officer, 3-158th Aviation
Battalion, Giebelstadt, Germany, 2004
Battalion XO, 3-158th Aviation Battalion, Balad,
Iraq, 2003
Instructor/Assistant Professor, D/G&EnE,
USMA, 1999-2002
Company XO, 571 MEDEVAC (AA), Fort Carson, CO, 1997
Troop Commander, 4th Squadron, 3rd Armored Cavalry Regiment, Fort Bliss, Texas and Fort
Carson, Colorado, 1995-1996
Squadron S-4 4th Squadron, 3rd Armored Cavalry Regiment, Fort Bliss, Texas, 1995
Flight Operations Officer, 4th Squadron, 3rd Armored Cavalry Regiment, Fort Bliss, Texas, 1994
Platoon Leader, 4th Squadron, 3rd Armored Cavalry Regiment, Fort Bliss, Texas, 1992-1994
Platoon Leader, 2/2 Aviation, 2nd Infantry Division, Camp Stanley, ROK, 2001



LTC Thompson is an Aviation officer with command and staff experience at the battalion and brigade levels. His most recent experiences include operational aviation assignments in support of Operation Iraqi Freedom, Operation Enduring Freedom, and the 2005 Kashmir Earthquake Relief Effort. Academically, LTC Thompson specializes in environmental geography with research interests in large-scale disaster response and domestic community emergency preparedness. LTC Thompson teaches EV203 (Physical Geography). ★

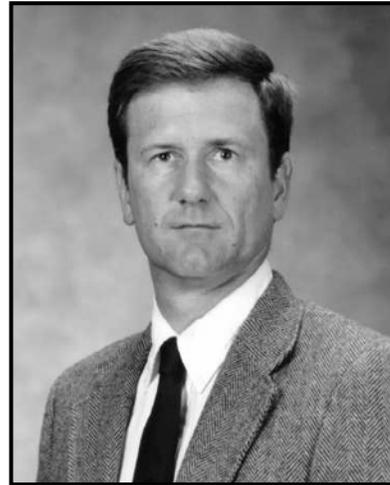
CIVILIAN FACULTY

Dr. JOHN A. BROCKHAUS

Professor and Program Director,
Geospatial Information Science

Ph.D., University of Idaho, 1987
M.S., California Polytechnic State University, 1980
B.S., California Polytechnic State University, 1978

Research Associate, NCS University, 1984-94
Instructor, University of Idaho, 1982-84
Systems Analyst, Humboldt State University, 1981-82
Instructor, California Polytechnic State University, 1978-80



Dr. Brockhaus is an environmental scientist with teaching and research interests in aerial photo interpretation, remote sensing, and geographic information systems. He has expertise in the application of remote sensing and geographic information systems in the study of landscape characterization, spatial modeling of ecological processes, site degradation monitoring, and land cover change analysis. He has published several articles in professional journals and has presented over 30 papers at national and international conferences. His research interests include site degradation monitoring with remotely sensed data, detection and mapping of invasive plant species using hyperspectral imagery, and the use of ground penetrating radar in archeological studies. He teaches EV377 (Remote Sensing), EV378 (Cartography), EV379 (Photogrammetry), EV398 (Geographic Information Systems) and EV477 (Advanced Remote Sensing). ★

Dr. MARIE C. JOHNSON

Professor of Geology and Program Director
Environmental

Ph.D., Brown University, 1990
A.B., Magna Cum Laude, Harvard College

Associate Research Scientist, Lamont- Doherty
Earth Observatory of Columbia University,
1992-1995

Lamont- Doherty Post-Doctorate Fellow, Earth
Observatory of Columbia University, 1990-
1992

Research Assistant, Brown University, 1986-1990



Dr. Johnson is a Geologist who applies the skills and techniques of physical chemistry to understanding geological processes. Her specific research interests include understanding fluid behavior at high pressures and temperatures inside the Earth, deducing physical conditions inside a volcano just prior to eruption, and environmental security. She is the author of many articles in professional journals, and often presents papers at national conferences. Dr. Johnson serves as the Environmental Program Director. She is the course director for EV388a (Physical Geology) and EV487 (Environmental Security). ★

Dr. JON C. MALINOWSKI

Professor, Geography

Ph.D., Geography, University of North Carolina at Chapel Hill, 1995

M.S., Geography, University of North Carolina at Chapel Hill, 1993

B.S. Foreign Service, Georgetown University, 1991, *magna cum laude*, Phi Beta Kappa

Teaching Fellow, UNC-Chapel Hill, 1993-95



Dr. Malinowski is a Geographer with teaching and research interests in environmental perception, spatial ability, children's geographies, summer camps, and the geography of Asia. He is the published author of two books, several academic journal articles and book chapters. He currently serves as the Human Geography Director. Dr. Malinowski serves as the course director for EV303 (Foundations in Geography) and EV372 (Geography of Asia). ★

Dr. MICHAEL A. BUTKUS

Associate Professor, Environmental Engineering

Ph.D., The University of Connecticut, 1997
M.S., The University of Connecticut, 1995
B.S., The United States Merchant Marine Academy,
1989
P.E., State of Connecticut, 1997

Research Associate and Teaching Fellow, UCONN,
1994-97
Nuclear Plant Engineer, Knolls Atomic Power
Laboratory,
1990-93



Dr. Butkus is an Environmental Engineer with research focuses on water, wastewater, and hazardous waste treatment system design. He has conducted environmental research for both the military and civilian sectors. His current research interests include remediation of lead on firing ranges, disinfection, and the development of small-scale water treatment devices for the Army. Dr. Butkus has been the course director for EV396 (Environmental Biological Systems) and XS391 (Principles and Applications of Environmental Chemistry). He also teaches EV385B (Introduction to Environmental Engineering), EV300/EV390A (Environmental Science), EV401 (Physical and Chemical Treatment), and EV402 (Biochemical Treatment). ★

Dr. PETER P. SISKA

Associate Professor, Geography

Ph.D. Forestry/GIS, Texas A&M University, College Station, TX 1995

Ph.D. Regional Geography, Comenius University, Bratislava, Slovakia 1984

MS. Regional Geography, Comenius University, Bratislava, Slovakia 1978

BS. Physical Geography, Comenius University, Bratislava, Slovakia 1974

Associate Professor Austin Peay State University
Clarksville, TN 2004-2007

Assistant Professor Stephen F. Austin University,
Nacogdoches, TX, 1999 - 2004

Research Scientist Texas A&M University,
1997-1999

Assistant Professor Constantine Philosopher University, Nitra, Slovakia, 1995 – 1997

Assistant Professor Comenius University, Bratislava, Slovakia, 1979 – 1984



Dr. Peter Siska has a diverse background in the natural resource management, spatial analysis, geostatistics and geographic information systems. He participated in the regional planning project in Slovakia and in the research projects in Texas including volumetric analysis of the total tree stem volume of the east Texas forest ecosystem, natural resource and inventory border zone project between Texas and Mexico and developing karst hazard prediction model in Pennyroyal Plane and Western Kentucky Highlands. Dr. Siska was also director of the School of Agriculture and Geosciences and published several papers in international scientific journals, presented scientific papers in the United States and Europe and is active on the board of directors for Applied Geography Conferences. He is a member of Slovak Academy of Sciences and currently serves on the editorial board for Geografický Časopis (Journal of Geography) published by Slovak Academy of Sciences. He teaches EV 365 course, Geography of Global Cultures and taught previously Regional Geography of Europe, the Americas and Australia, Regional Geography of Africa, Asia and Oceania, Introduction to GIS, Political Geography and graduate courses in Geospatial Analysis. ★

Dr. AMY R. KRAKOWKA

Assistant Professor, Geography

PhD., Geography, Boston University, 2005
M.A., Energy and Environmental Analysis, 2002
B.S., Environmental Studies, 2000, *magna cum laude*

Research fellow, Boston University, 2002-2005
Teaching fellow, Boston University, 2001



Dr. Richmond is a Geographer who applies her skills to understanding the interactions between environmental resources and economic systems. Specifically she uses statistical models, GIS, remote sensing data, and economic data to research the interactions between marketed and non-marketed environmental resources and the economy. She is the author of several articles in professional journals and often presents papers at national conferences. Dr. Richmond teaches EV203 (Physical Geography) and EV486 (Environmental Geography). ★

Dr. RICHARD L. WOLFEL

Assistant Professor, Geography
Center for Languages, Cultures and Regional
Studies

Ph.D, Indiana University, Bloomington, 2001
M.A., University of Cincinnati, 1997
BSED, West Chester University of Pennsylvania,
1995

Assistant Professor, Southern Illinois University
Edwardsville, 2003-07
Assistant Professor, Salem State College, 2001-03
Associate Instructor, Indiana University, 1997-2001



Dr. Wolfel is a cultural and political geographer with regional interests in Central Asia and Germany. His specific research interests focus on nationalism and the urban built environment, post-Soviet political development and the influence of nationalism on tourism. He is the author of several books, journal articles, reviews and book chapters. Dr. Wolfel will be teaching EV365 (Geography of World Cultures) and supports the Cultural Awareness Initiative as part of the new Center for Languages, Cultures and Regional Studies. ★

Ms. SANDRA DUNLAP
Instructor, Geography

M.A., University of South Florida, 1994
B.A., University of South Florida, 1991

U.S. Army Reserve, 1984-1986
U.S. Navy Active Duty Hospital Corpsman (HM1), 1973-1983



Ms. Dunlap is a civilian instructor who has previously taught 5th and 6th grade general science as well as 8th grade earth science in a private bilingual school in Honduras. Her academic interests lie in Geomorphology with secondary interests in historical and human geography. She has published articles in peer-reviewed journals. ★

Ms. HEIDI NATEL
Instructor, Geography

M.A., State University of New York, College at
Oneonta, 2004
B.S., State University of New York, College at
Brockport, 2000



Ms. Natel studies surficial processes and environmental geochemistry. Her current research involves the use of stable isotopes, trace elements, and sedimentology to understand the effects of land use change in the Upper Susquehanna River Basin and its potential implications on the Chesapeake Bay Watershed. She also is conducting research at the Bearing Glacier, Alaska, where she has been collaborating with the Bering Glacier Research Group for the past several years. Ms. Natel Teaches EV203. ★

ROTATING MILITARY FACULTY

LTC JOSEPH P. HENDERSON

Assistant Professor, Geography

Ph.D., University of Tennessee, 2006
M.S., University of Tennessee, 1997
B.S., USMA, 1987

Aviation Plans and Operations Officer, Eighth U.S.
Army, ROK, 2002

S-3, 3rd MI Bn, 501st MI Bde, ROK, 2001

Bde Aviation Officer, 501st MI Bde, ROK, 2000

Instructor/Assistant Professor, D/G&EnE, USMA,
1997-2000

Commander, Aviation Detachment, 751st MI Bn,
ROK, 1994

Bde S-2, Operatational Support Airlift Command
(OSAC), Ft. Belvoir, VA 1992

Operations Officer and XO, Fixed Wing PAT, OSAC, Ft. Belvoir, VA 1990

Air Assault Commandant, Davison Aviation Command, Ft. Belvoir, VA 1990

Aeroscout Platoon Leader, C/4-501st Attack Bn, ROK, 1988-1989



LTC Henderson is an Aviation officer with command and staff experience in both fixed and rotary wing units including aeroscout, utility helicopter, fixed-wing airlift, and fixed-wing reconnaissance. His most recent operational experience ranged from battalion to army level in the Republic of Korea. LTC Henderson is a physical geographer with expertise in geomorphology and climatology. His graduate-level research included creating landslide hazard maps using GIS and the study of climate and fire ecology using tree-ring data. LTC Henderson is the course director for EV203 (Physical Geography). ★

LTC MICHAEL D. PELOQUIN

Instructor, Environmental Engineering

M.A., Bowie State University, 2002
M.S., Georgia Institute of Technology, 2000
B.A., Cornell University, 1989

Plans Officer, Office of the Chief of Engineers,
HQDA, 2004-05
Battalion Operations Officer, 10th Engineer
Battalion, 3rd Infantry Division, Ft. Stewart,
Georgia, 2003-04

Project Manager and Deputy District Engineer,
Baltimore District Corps of Engineers,
Baltimore, MD, 2000-03

Company Commander, 40th Engineer Battalion, 1st
Armor Division, Baumholder, Germany,
1998-99

Assistant S3/Assistant Brigade Engineer, 40th Engineer Battalion, 1st Armor Division,
Baumholder, Germany, 1996-1998

Engineer Plans Officer, Warrior Preparation Center, Einsiedlerhof Air Station, Germany, 1995-96

Platoon Leader, 3rd Engineer Battalion, 24th Infantry Division, Ft. Stewart, Georgia, 1991-94



LTC Peloquin is an Engineer officer whose experience in several divisional combat engineer battalions is rounded out with assignments with the U.S. Army Corps of Engineers, on the Army Staff, and in modeling and simulations. As a battalion S3 in the 3rd Infantry Division at the onset of Operation Iraqi Freedom in March of 2003, LTC Peloquin built on his prior combat, security, and peace enforcement experience from Operation Desert Storm and two deployments to Bosnia-Herzegovina. His research interests include containment transport in aquifers and sediment, modeling, bioremediation, monitored natural attenuation, sediment natural recovery, and soil and groundwater remediation. He teaches EV450 (Environmental Decision Making)★

Lt. Col. LUIS A. RIOS, US Air Force
Assistant Professor, Geography

M.S., Texas A&M University, 1995
B.S., Rutgers University, 1989

Chief, Current Ops Division, Offutt AFB, 2003-2004

Chief, Standards & Eval Branch, Offutt AFB, 2001-2003

Cdr, Weather Flight, Charleston AFB, 1997-2001

Leader, Atmospheric Analysis Models, Offutt AFB, 1995-1997

Satellite Coordinator, Lajes AB, The Azores, 1992-1993

Wing Weather Officer, Nellis AFB, 1989-1992



Lt. Col. Rios is an Air Force weather officer who has served in weather flights, weather squadrons and the Air Force Weather Agency (AFWA) in support of classified national programs, standardization and evaluation (Stan/Eval), Army aviation, tactical air forces and mobility air forces. His contingency/deployment history includes DESERT STORM in 1992, Operation RESTORE HOPE in 1993, and Operation ALLIED FORCE in 1999. While serving as a combat weather flight commander, he helped certify the employment of C-17A cargo aircraft for use by Army paratroopers. Lt. Col. Rios received a Masters Degree in meteorology with emphasis on analysis and forecasting. His academic interests include tropical meteorology, climatology, lightning meteorology and the operational applicability of meteorological and climatic techniques. Lt. Col. Rios teaches EV203 (Physical Geography) and serves as course director for EV389B (Climatology) and EV387 (Meteorology). ★

MAJ(P) JAMES JORDANO

Assistant Professor, Environmental Engineering

M.S., Johns Hopkins University, 2002
M.S., University of Missouri (Rolla), 1996
B.S., United States Military Academy, 1992

XO, 2 BCT Troops Battalion, 3rd Infantry Division,
FOB Kalso, Iraq, 2007-08
S-3, 2 BCT Troops Battalion, 3rd Infantry Division,
Fort Stewart, Georgia, 2006-07
Instructor/Assistant Professor, D/G&EnE, USMA,
2002-05
Group Engineer, 45th CSG(F), Schofield Barracks,
Hawaii, 2000
Commander, HSC, 84th Engineer Battalion, Schofield Barracks, Hawaii, 1998-1999
Assistant S-3, 84th Engineer Battalion, Schofield Barracks, Hawaii, 1997
S-4, 84th Engineer Battalion, Schofield Barracks, Hawaii, 1996
XO, B/19th Engineer Battalion, Fort Knox, Kentucky, 1995
S-1, 19th Engineer Battalion, Fort Knox, Kentucky 1994
Assault and Obstacle Platoon Leader, C/19th Engineer Battalion, Fort Knox, Kentucky, 1993
Platoon Leader, A/19th Engineer Battalion, Fort Knox, Kentucky, 1992



MAJ(P) Jordano is an Engineer officer who has served in mechanized and combat heavy engineer units. Most recently, he served as the operations and executive officer for the 2 BCT Troops Battalion, 3rd Infantry Division, during a 15-month deployment to Iraq in support of OIF V. His academic interests include hazardous waste remediation and transformation kinetics. He has contributed to the development of SWEAT/IR – an infrastructure assessment tool for the U.S. Army and conducted research on the transformation kinetics and migration of lead (Pb) at firing ranges. MAJ(P) Jordano teaches EV300 (Environmental Science), EV350 (Environmental Engineering Technologies), and EV385 (Introduction to Environmental Engineering). ★

MAJ JON BUSHMAN

Instructor, Geography

M.S., Geography, University of Wisconsin - Madison, 2006
B.S., Geography, University of Wisconsin – La Crosse, 1995

Tank Company Cmdr, B Co., 2nd Bn., 34th Armor, Ft. Riley
S4, 1st Bn., 34th Armor, Fort Riley
Assistant S4, 1st Brigade, 1st Infantry Division, Fort Riley
S4, 3rd Bn., 66th Armor, Fort Hood
Company XO, HHC 1st Brigade, 4th Infantry Division, Fort Hood
Tank Platoon Leader, D Co., 3rd Bn., 66th Armor, Fort Hood
Tank Driver, D Co., 4th Bn., 37th Armor, Fort Riley



MAJ Bushman is an Armor officer who has held various command and staff positions in tank units at battalion and brigade level. His master's research included an analysis of the complexities of creating the National World War II Memorial on the National Mall in Washington, DC, and its effects on and relationship to the existing open landscape. MAJ Bushman's academic interests include memorial landscapes, regional geography, and historical as well as cultural geography. He teaches EV203 (Physical Geography) and EV365 (Geography of Global Cultures). ★

MAJ JAMES F. CHASTAIN

Assistant Professor, Geography

M.A., University of South Carolina, 2005
B.A., Presbyterian College, 1996

Commander, B Co. 532d Military Intelligence Battalion (Theater A.C.E.), Cp. Humphreys, Republic of Korea, 2002-2003
G-2 Operations Officer, 2d Infantry Division, Cp. Red Cloud, Republic of Korea, 2001-2002
Commander, 1st Target Acquisition Detachment (Airborne), Ft Bragg, N.C. 1999-2000
Ammunition Platoon Leader, 3d Battalion 27th Field Artillery Regiment (MLRS), Ft Bragg, N.C. 1998-1999
Firing Platoon Leader, 3d BN 27th Field Artillery Regiment (MLRS), Ft Bragg, N.C. 1997-1998



MAJ Chastain is a Strategic Intelligence officer and a political geographer whose area of interest is globalization and international security. His thesis, "Where Did They Vote for Le Pen? Demographics, Globalization and Political Geography in the 2002 French Presidential Election," studied the socio-demographic correlates of support for the far-right French politician Jean-Marie Le Pen. MAJ Chastain has taught EV203 (Physical Geography), EV373 (Geography of Latin America), EV390B (Urban Geography), EV374 (Geography of the Middle East and Africa) and EV482 (Military Geography). MAJ Chastain is the Course Director for EV365 (Geography of Global Cultures). Additionally, MAJ Chastain is an Associate Head Coach and Defensive Coordinator for Army Sprint Football. ★

MAJ WILLIAM CLARK

Instructor, Geography

M.S., University of Utah, 2007
M.S., University of Missouri at Rolla, 2001
B.S., University of Wyoming, 1996

Resident Office OIC, U.S. Army Corps of Engineers, Gulf Region
Central District, Iraq, 2005
Project Engineer, USACE, Alaska District, 2004
Company Commander, C/864th EN BN/Special Troops BN, Fort
Richardson, AK, 2003-2004
Company Commander, USAG HQ, Ft. Richardson, AK, 2001-2003
Company XO, HHC/307th EN BN, Fort Bragg, NC, 1999-2000
Assistant S4, HHC/307th EN BN, Fort Bragg, NC, 1999
Platoon Leader, 618th EN CO/307th EN BN, Fort Bragg, NC, 1997-1999



MAJ Clark is an Engineer officer who has served in a variety of command and staff positions at company, battalion and engineer district level. He has deployed to Iraq serving as the officer in charge for a resident engineer office located in east Baghdad. His master's research was an assessment on the use of remote sensing technologies and computer modeling to accurately predict future vegetation conditions for the purposes of better range management in the upper Colorado River Basin. Other areas of academic interest are geomorphology, land use change and natural resource conservation. MAJ Clark is teaching EV203 (Physical Geography) and is the course director for EV388B (Geomorphology). ★

MAJ MATTHEW CUVIELLO

Instructor, Geography

M.A., University of North Carolina – Chapel Hill, 2007
B.S., United States Military Academy, 1998

Embedded Liaison, Center of Army Lessons Learned,
Afghanistan/Iraq
Assistant S3, 1st Armor Training BDE, Fort Knox
Company Commander, HHC 3-81 AR, Fort Knox
Company Commander, B Company, 3-81 AR, Fort Knox
Assistant S4, 1st BDE, 1st Armor Division, Friedberg, Germany
Company XO, C Company, 1st Battalion, 37th Armor, Friedberg, Germany
Tank Platoon Leader, B Company, 1st Battalion, 37th Armor, Friedberg Germany



MAJ CuvIELLO is an Armor officer who has held various command and staff positions in tank and training units at battalion and brigade level. He has deployed in support of the KFOR mission in Kosovo, and in support of Operations Enduring Freedom and Iraqi Freedom. While attending the University of North Carolina, his studies focused on a synoptic scale analysis of frozen precipitation in the Piedmont region of North Carolina and the creation of a revised tool for prediction of frozen precipitation type. MAJ CuvIELLO's academic interests include climatology, winter weather, and military geography. MAJ CuvIELLO teaches Physical Geography (EV203) and Climatology (EV389B). ★

MAJ ADAM CZEKANSKI

Instructor, Environmental Engineering

M.S., University of Texas, 2007

B.S., Cornell University, 1998

EIT, Texas, 2006

Commander, Charlie Company, 44th Engineer Battalion, Camp Habbaniyah, Iraq, 2004-2005

Commander, Charlie Company, 44th Engineer Battalion, Camp Howze, Republic of Korea, 2003-2004

Battalion S-4, 44th Engineer Battalion, Camp Howze, Korea, 2003

Assistant Division Engineer, 10th Mountain Division (LI), Bagram Air Base, Afghanistan, 2002

Company XO, Bravo Company, 41st Engineer Battalion, Fort Drum, NY, 2001-2002

Platoon Leader, 642nd Engineer Company (CSE), 41st Engineer Battalion, Fort Drum, NY, 2001

Platoon Leader, Alpha Company, 41st Engineer Battalion, Fort Drum, NY, 2000-2001

MAJ Czekanski is an Engineer officer who has served in light, mechanized and construction engineer units. Most recently, he led his company in Anbar Province, Iraq, where they conducted missions that included cache sweeps, ordnance destruction, and cordon and search. His academic interests are in water resources planning and management, and water/wastewater treatment. While at the University of Texas, he developed a technical manual to instruct government workers in Indonesia on the use of GIS technology to model alterations in the watersheds of Sumatra which occurred from the tsunami and resulting earthquakes. MAJ Czekanski teaches EV300 (Environmental Science) and EV350 (Environmental Engineering Technologies). ★



MAJ GAYLE E. DAVIS

Instructor, Environmental Engineering

M.S., University of Maryland, 2006

B.S., Ohio University, 1994

EIT, Ohio, 1993

Chief, Environmental Training Team, U.S. Army Center for Health Promotion and Preventive Medicine, APG, MD '03-04

Theater Preventive Medicine Officer, NATO Stabilization Force (SFOR), Operation Joint Forge, Bosnia and Herzegovina, 2003

Commander, HHC, 30th Medical BDE, Heidelberg, Germany '00-02

Chief, Operations and Support Branch, G4, 30th Medical BDE, Heidelberg, Germany 1999-2000

Company Commander, HQ, U.S. Army Garrison-Fitzsimons, Aurora, CO 1998-1999

Chief, Base Realignment and Closure Operations, U.S. Army Garrison-Fitzsimons 1997-1998

Executive Officer, C Company, 703d Main Support Battalion, Fort Stewart, GA 1997

Division Medical Supply Officer, 3d Infantry Division, Fort Stewart, GA 1996-1997

Facilities Management Officer, Winn Army Community Hospital, Fort Stewart, GA 1994-1996

MAJ Davis is a Medical Service Corps officer who has served in a variety of assignments that include positions at the division, corps and garrison level. She has deployed to Mauritania, Africa as a medical logistics officer and to Sarajevo, Bosnia as the Theater Preventive Medicine Officer. MAJ Davis holds a masters degree in environmental engineering with special interest in bioremediation. MAJ Davis teaches EV300 (Environmental Science) and EV350 (Environmental Technologies). ★



MAJ CHRIS FUHRIMAN

Instructor, Geography

M.A., University of Hawai'i, 2008
B.S., United States Military Academy, 1998

Battalion S3, 1-121th Aviation Regiment, Fort Rucker, Alabama,
2005-06
Company Commander, HHC/1-212th Aviation Regiment, Fort
Rucker, Alabama, 2003-05
Platoon Leader, C/2-227th Aviation Regiment, 1st Cavalry Division,
Fort Hood, Texas, 2001-02
Company XO, C-227th Aviation Regiment, 1st Cavalry Division, Fort
Hood, Texas, 2000-01
Battalion S2, 164th Air Traffic Services Group, Republic of Korea, 1999-2000



MAJ Fuhriman is an Aviation officer who has served in general support battalions (Korea, Fort Hood) and a flight training battalion (Fort Rucker). His past positions include battalion staff, platoon leader, company commander, and UH-60 instructor pilot. MAJ Fuhriman is a cultural geographer with a regional interest in East Asia. His specific research interests are landscape studies, film geography, and social geography. His graduate research focused on cinematic representations of the Korean Demilitarized Zone. MAJ Fuhriman teaches EV203. ★

MAJ HANNON DIDIER

Instructor, Geospatial Information Science

M.S., Louisiana State University, 2007
B.S., United States Military Academy, 1997

Company Commander, Bravo Troop, 3-6 Cavalry Squadron, Camp
Humphreys, Korea, 2004-2005
Brigade Plans Officer, 6th Cavalry Brigade, Camp Humphreys, Korea,
2003
Battalion S-4, 3-101 Aviation Regiment, Kandahar/Bagram,
Afghanistan, 2002
Battalion S-4, 3-101 Aviation Regiment., Fort Campbell, KY, 2001-
2002
Platoon Leader, Bravo Company 3-101 Aviation Regiment, Fort Campbell, KY, 1999-2001



MAJ Didier is an Attack Aviation officer who has served with the 101st Airborne Division and the 6th U.S. Cavalry Brigade. He deployed to Afghanistan in early 2002 with 3-101 Aviation Regiment where he flew combat escort and air assault security missions, and provided logistical and movement support to the attack battalion. His academic interests are in remote sensing, surveying, and wetlands planning and management. Most recently, he surveyed and sampled a series of subsiding maritime beach ridges in southern Louisiana using RTK GPS technology in order to present options for coastal restoration. MAJ Didier teaches EV380 (Surveying), EV379 (Photogrammetry), and EV203 (Physical Geography). ★

MAJ(P) BRIAN DUNMIRE

Instructor, Geography

ABD, Old Dominion University
M.S., National Defense Intelligence College, 2005
M.M.A.S., U.S. Army Command and General Staff College, 2004
M.A., St. Mary's University of San Antonio, 1998
B.A., Pennsylvania State University, 1992

Strategic Intelligence (FA34) Career Manager, U.S. Army Human
Resources Command, Alexandria, VA, 2005-2007

Deputy J2/JISE Director, TF Dagger (5th SFG), Karshi-Khanabad,
UZ, 2001

J3/J7 Intelligence Plans and Exercise Officer, Special Operations Command Joint Forces
Command, Norfolk, VA 2000-2003

Commander, D Co., 102nd Military Intelligence Bn., Cp. Essayons, South Korea, 1999-2000

Ground Component Intelligence Collection Mgr., 532nd MI Bn, Cp. Humphreys, S. Korea, 1999

Division Intelligence Collection Manager, 104th MI Battalion, Fort Hood, TX, 1997-1998

Cavalry Squadron S-2, 1st Squadron, 10th Cavalry, Ft. Hood, TX 1996-1997

Brigade S-2, 3rd Brigade, 4th Infantry Division, Ft. Hood, TX 1996

Brigade S-2, 256th Infantry Brigade, 4th Infantry Division, Ft. Hood, TX 1996

Executive Officer, D Co., 104th Military Intelligence Bn, Ft. Hood, TX, 1996

Platoon Leader, D Co., 104th Military Intelligence Bn, Ft. Hood, TX, 1995

Brigade S-2, 1st Brigade, 2nd Armored Division, Ft. Hood, TX, 1994

Assistant Brigade S-2, 1st Brigade, 2nd Armored Division, Ft. Hood, TX 1993-1995



MAJ Dunmire is a Strategic Intelligence officer that has served in conventional tactical, operational intelligence, and joint special operations units. He deployed to Uzbekistan in 2001 with TF Dagger/5th Special Forces Group in support of Operation Enduring Freedom, and 2002 with Special Operations Command Central in preparation for Operation Iraqi Freedom. MAJ Dunmire is a human geographer whose interest is in South Asia and Latin American concepts of spatial security. MAJ Dunmire teaches EV365 (Geography of Global Cultures) and EV203 (Physical Geography). ★

MAJ IAN IRMISCHER

Instructor, Geospatial Information Science

BS Tulane University Chemical Engineering
MS University of Missouri Rolla Engineering Management
MA University of California Santa Barbara Geography

Platoon Leader, C/40th Engineer Battalion, Baumholder GE
XO, B/40th Engineer Battalion, Bosnia
BMO 2-8 IN, Baumholder GE
Commander, 610th Engineer Detachment, Fort Hood TX
Commander, B/588 Engineer Battalion, Baqubah, Iraq



MAJ Ian Irmischer is a Combat Engineer officer who was commissioned in 1996. After a deployment to Bosnia, Herzegovina, he Commanded the 610th Digital Terrain Detachment at Fort Hood, TX and B/588th Combat Engineer Company in Baqubah, Iraq. MAJ Irmischer has earned a BS in Chemical Engineering from Tulane University, a MS in Engineering Management from the University of Missouri, Rolla and most recently a MA in Geography from the University of California, Santa Barbara. His research interests include the applications of Geographic Information Systems for tactical military planning and the creation of digital elevation models. MAJ Irmischer teaches EV203 (Physical Geography), EV378 (Cartography), EV398 (Geographic Information Systems). ★

CPT TRAVIS J. RAYFIELD

Instructor, Environmental Engineering

M.E., University of Florida, 2008
M.S., Missouri University of Science and Technology, 2003
B.S., United States Military Academy, 1999

Commander, 72nd Engineer Company (MAC), 1st Engineer
Battalion, Fort Riley, Kansas 2004-06
Battalion S-4, 1st Engineer Battalion (M), Ar Ramadi, Iraq, 2003-04
Company XO, Bravo Company, 14th Engineer Battalion, Fort
Lewis, Washington, 2001-02
Support Platoon Leader, Alpha Company, 14th Engineer Battalion, Ft. Lewis, WA, 2000-01
Platoon Leader, Alpha Company, 14th Engineer Battalion, Fort Lewis, Washington, 2000



CPT Rayfield is an Engineer officer with command and staff experience in corps wheeled and mechanized engineer units. Most recently, he led his company in the transformation from Charlie Company, 1st Engineer Battalion to the 72nd Mobility Augmentation Company (MAC). Previously, he deployed as a Battalion S-4 with the 1st Engineer Battalion to Ar Ramadi, Iraq, in support of Operation Iraqi Freedom. His environmental engineering experience and academic interests are in water quality and water resource management. As a graduate student at the University of Florida, his research project evaluated the use of in situ nitrate sensors to capture low nitrate levels at high temporal resolution (hourly) as part of a larger sensor network. CPT Rayfield teaches EV450 (Environmental Decision Making). ★

MAJ ERIC P. McALLISTER

Instructor, Environmental Engineering

M.S.E., Johns Hopkins University, 2006
B.S., United States Military Academy, 1996

Troop Commander, C Troop, 1st Squadron, 14th Cavalry Regiment,
Fort Lewis

S4, 1st Squadron, 14th Cavalry Regiment, Fort Lewis

XO, E Troop, 5th Squadron, 15th Cavalry Regiment, Fort Knox

XO, Headquarters and Headquarters Troop, 3d Squadron, 3d
Armored Cavalry Regiment, Fort Carson

Scout Platoon Leader, I Troop, 3d Squadron, 3d Armored Cavalry Regiment, Fort Carson

Tank Platoon Leader, I Troop, 3d Squadron, 3d Armored Cavalry Regiment, Fort Carson



MAJ McAllister is an armor officer who has held primarily leadership positions in cavalry units at squadron level and below. He deployed his troop in support of Operation Iraqi Freedom as a member of the Army's first Stryker Brigade (3d Brigade, 2nd ID). His environmental engineering experience and research included the remediation and the secondary and tertiary treatment of explosives in groundwater and wastewater, respectively. His academic interests are in biological processes of water and wastewater treatment, as well as, environmental systems optimization. MAJ McAllister teaches EV450 (Environmental Decision Making) and is course director for EV396 (Environmental Biological Systems). ★

MAJ JASON R. RIDGEWAY

Instructor, Geography

M.A., University of Georgia, 2006
B.S., Texas A&M University, 1996

Company Commander, 2d Battalion, 503d Infantry Regt. (Airborne)

Brigade Assistant S-3, 173d Airborne Brigade

Brigade Adjutant, 187th Infantry Regt., 101st Airborne Division

Battalion Adjutant, 3rd Bn, 187th Infantry Regt., 101st Airborne
Division

Mortar Platoon Leader, 3rd Bn., 187th Infantry Regt., 101st Airborne
Division

Rifle Platoon Leader, 3rd Bn., 187th Infantry Regt., 101st Airborne Division



MAJ Ridgeway is an Infantry officer who has held command and staff positions in infantry units at company, battalion, and brigade level. His masters research included the use of object-oriented image analysis to map geomorphic habitat units on the Lower Congo River. His academic interests include cultural identity and human territoriality. MAJ Ridgeway teaches EV203 (Physical Geography), and he is course director for EV373 (Geography of Latin America). ★

MAJ DAVID P. ROUX

Instructor, Environmental Engineering

B.S., Civil Engineering, University of Virginia, 1998
M.S.E., Environmental Engineering, Johns Hopkins University, 2007
EIT, Virginia, 1998

Commander, A Btry., 6th Bn. (MLRS), 37th FA Regt., 2d Inf. Div.,
Camp Casey and Camp Stanley, Korea, 2004-2005
Fire Direction Officer, 6th Bn. (MLRS), 37th FA Regt., 2d Inf. Div.,
Camp Stanley, Korea, 2003-2004
Assistant S3/Operations Officer, 6th Bn. (MLRS), 37th FA Regt.,
Camp Stanley, Korea, 2003
S4, 3d Bn., 319th Abn. FA Regt., 82d Abn. Div., Ft. Bragg, NC, 2002
Executive Officer, C Btry., 3d Bn., 319th Abn. FA Regt., 82d Abn. Div., Ft. Bragg, NC, 2000-
2002
Adjutant, 3d Bn., 319th Abn. FA Regt., 82d Abn. Div., Ft. Bragg, NC, 2000
Fire Support Officer, C Co., 3d Bn., 504th Parachute Inf. Regt., 82d Abn. Div., Ft. Bragg, NC,
1999-2000



MAJ Roux is a Field Artillery officer who served in a wide range of battery and battalion leadership positions for airborne artillery (105 mm, towed howitzer) and multiple-launch rocket system (MLRS) battalions. As a graduate student at the Johns Hopkins University, MAJ Roux researched the effectiveness of potassium permanganate and aluminum oxide in oxidizing low-molecular weight organic compounds as surrogates for natural organic matter (NOM) in drinking water treatment. MAJ Roux's research interests include physicochemical treatment processes in drinking water treatment, bioremediation techniques, and biological processes in wastewater treatment. MAJ Roux teaches EV300 (Environmental Science) and EV350 (Environmental Technologies). ★

MAJ BENEF SHEH D. VERELL

Instructor, Geography

M.A., University of Maryland, 2006
M.A., Webster University, 2001
B.S., United States Military Academy, 1997

Deputy Provost Marshal, Fort Myer, Virginia
Company Commander, U.S. Army Security Force, Fort Detrick,
Maryland
Platoon Leader, 545th Military Police Company, 1st Cavalry
Division, Fort Hood, Texas



MAJ Verell's basic branch is Military Police and her career field designation is Information Operations. Her master's research included studying the neighborhood development of Spring Valley in Washington DC, the changing demographics, and the environmental effects of changing land use from 1900-2000. MAJ Verell's academic interests include land cover and land use change and energy distribution and consumption. She teaches Physical Geography (EV203) and the Principles of Land Use Planning and Management (EV391A). ★

CPT WILLIAM C. WRIGHT

Instructor, Geospatial Information Science

M.S., University of Florida, 2008

B.S., United States Military Academy, 1999

Commander, Delta Troop, 5-15 Cavalry Squadron, Fort Knox, Kentucky, 2004-2006

Assistant G-3 Combat Training Center, Joint Readiness Training Center, Fort Polk, Louisiana, 2004

Assistant S-3, 3/3 Cavalry Regiment, Iraq, 2003

Squadron Maintenance Officer, 3/3 Cavalry Regiment, Fort Carson, Colorado, 2001

Executive Officer, K/3-3 Armored Cavalry Regiment, Fort Carson, Colorado 2000-2001

Tank Platoon Leader, K/3-3 Armored Cavalry Regiment, Fort Carson, Colorado, 2000

Platoon Leader, Howitzer Battery, 3/3 ACR, Camp Dobol, Bosnia, 2000



CPT Wright is an Army Space Operations officer who has held positions in cavalry units at squadron level and below. He deployed to Iraq in 2003 with 3/3 Armored Cavalry Regiment where he served as an assistant Squadron S-3 and deployed to Bosnia in 2000 where he served as a peace-keeping platoon leader. His academic interests include LiDAR (specifically Airborne Laser Swath Mapping), Global Positioning Systems, and Geographic Information Systems. Most recently, his research was of specific interest to the Army research office where he used GPS and LiDAR data to quantify L-band signal attenuation caused by forest canopy. CPT Wright teaches EV203 (Physical Geography). ★

CDT Tyler Bambrick learns to use an Israeli missile system on his IAD.



EMERITUS FACULTY

DIRTMAN

Professor of Physical Geography and The Spirit of
the Department of G&EnE

Ph.D., United States Military Academy, 1959
M.S., United States Air Force Academy, 1959 (top
graduate)
M.S., United States Naval Academy, 1845 (top
graduate)
B.S., United States Military Academy, 1802 (goat)
P.E., Commonwealth of Virginia, 1802



Dirtman is a retired department faculty member currently residing on the rooftop of Washington Hall (near the Weather Station) and is known to spontaneously rally cadets enrolled in EV203, "Dirt," to support Army athletic teams on the fields of friendly strife. As a former Army officer, he has served in every climatic regime known to man. He is an expert in geomorphology with special interest in plate tectonics. He is currently involved in advance studies of weather systems and enjoys the passage of wave cyclones and occluded fronts. He has personally experienced all known environmental hazards including tornadoes, hurricanes, earthquakes, tsunamis, volcanic eruptions, and williwaws. Of particular note, his volcanic encounter in 1980 in Washington State occurred shortly after he was subducted under the North American Plate. As an emeritus faculty member, he is in charge of the morale and welfare of the department faculty and all cadets in EV203. ★



Legendary Dirtman and superhero sidekick, Dirtwoman, fire up the yearlings as they lead the run back from Camp Buckner.



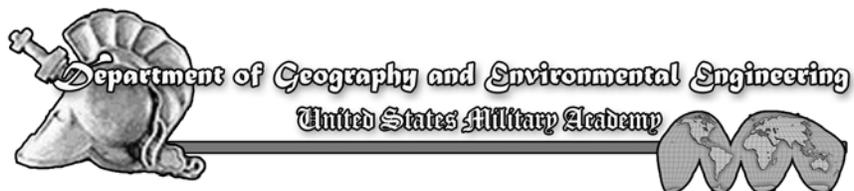
Department-led Army Orienteering Club – six time national champions!!

Cadet Rachel Neasham
(geography major and team captain)
speeds by the competition.
The team is coached
by Dr. Johnson.
Photo by Dr. Malinowski.



FIRST REGIMENT MAJORS

Company A1			
09 DREW, JOHNATHON	Hum Geo	10 JACOBS, SEAN	GIS
09 HESS, WESLEY	Env Eng	10 MOORE, MICHAEL	Env Eng
09 HICKEY, MATTHEW	Hum Geo	10 WHITEHOUSE, DEREK	GIS
09 ROSS, DESMOND	Env Geo	10 WILLIAMS, ERIC	GIS
09 SHAFFER, MATTHEW	Env Eng	10 ZAPCIC, ANDREW	Env Sci
10 CAIN, NICOHLAS	Env Eng		
10 JONAS, JEREMY	Env Geo		
Company B1			
09 MITCHELL, JOSHUA	Hum Geo	Company F1	
09 SIMPSON, WILLIAM	Env Geo	09 COFFIE, JOSHUA	Env Geo
10 CRANDALL, BRANDT	Env Sci	09 COMER, THOMAS	Hum Geo
10 HINKLEY, WILLIAM	GIS	09 NGO BEA-HOB, SONIA	Env Sci
10 LEWIS-WALLS, NICHOLAS	Hum Geo/GIS	09 ROWAN, BRIAN	Hum Sci
		10 BENTLEY, BRIDGET	Env Geo
		10 RICHERT, JAMES	GIS
Company C1			
10 WALKER, NICHOLAS	GIS	10 WILKINSON, MATTHEW	Hum Geo
		10 LULL, KENRICK	Env Sci
Company D1			
09 RITCHEY, BRANDON	Hum Geo	Company G1	
10 CHAMBERS, RACHEL	Env Sci	09 BROWN, JACOB	Env Geo
10 D'ELOSUA, JASON	Env Eng	09 DICKENSON, BRIANNA	Hum Geo
10 HILL, MARIO	Env Geo	09 DUNNING, WHITT	Env Geo
10 HORN, DAVID	Hum Geo	09 RAMOS- DIAZ, RAMON	GIS
Company E1			
09 AMAN, CRAIG	EnvSci	Company H1	
09 KNUDSEN, PAUL	Hum Geo	09 CLARK, JAMIE	Env Sci
09 LYTLE, DARRELL	GIS	09 MCBRIDE, LON	Env Sci
09 MCCONAUGHEY, ERIN	Hum Geo	09 TIMM, ASHLEY	Env Eng
09 MODLIN, DANIEL	Hum Geo	09 TRUMP, NEAL	Hum Geo/GIS
09 PULLIAM, KATHLEEN	Hum Geo	10 BATES, KYLE	Hum Geo
09 WHIPPLE, NATHANIEL	Env Eng	10 DOW, JEFFREY	GIS
10 BERNAL, ERNEST	Env Geo	10 MCBRIDE, LON	Env Sci
10 DAWSON, WILLIAM	Env Geo	10 NEWMAN, KYLE	GIS
10 HOPKINS, RYAN	Env Eng	10 THOMPSON, KARL	Hum Geo
		10 VAUGHN, SAMUEL	GIS



SECOND REGIMENT MAJORS

Company A2			Company F2	
09 SWOOPE, WARREN	Hum Geo	09 DEBRUHL, DEREK		Hum Geo
09 WHEELER, KENNETH	Env Geo	09 GALLOW, MICHAEL		Env Sci
10 MCCARTER, KYLE	Hum Geo	09 GILES-MADDEN, SARAH		Hum Geo
10 MCLELLAN, ANDREW	GIS	09 GROB, JACOB		Hum Geo
10 VINCENT, JEFFERY	Hum Geo	09 KENNER, MAURICE		Hum Geo
10 WILEY, JOSHUA	GIS	09 LINDSEY, ROBERT		Hum Geo
10 WILSON, ROBERT	GIS	09 NIFONG, RICHARD		Hum Geo
		10 MEDELLIN, MARCO		Hum Geo
		10 RAMSDALE, ADAM		GIS
Company B2			Company G2	
09 EASON, CHARLES	GIS	09 PEEPLES, WALTER		Env Sci
09 CAVALIER, OMAR	Hum Geo	09 WARDYNSKI, JENNIFER		Env Sci
10 BRANT, WILLIAM	Env Eng	10 JEFFCOACH, TIMOTHY		Env Eng
10 CLARK, GRAHAM	Env Sci	10 MARX, WHITNEY		Env Sci
10 WOOLEY, MATTHEW	GIS	10 MULDOON, JOSEPH		Env Geo
10 MOOMIN, AHMED	Env Sci	10 TARVER, KYLE		Hum Geo
Company C2				
09 LEWIS, FREDDIE	GIS			
09 FICHTNER, KATHERINE	Env Geo	Company H2		
09 HEINECKE, KRISTINA	Hum Geo	09 BROWNE, CRISTIN		Hum Geo
09 LOPEZ, JUSTIN	Env Eng	09 BURKE, BRIDIE		Hum Geo
09 POMEROY, JASON	Env Geo	09 CHO, LINDA		Env Sci
09 VASS, WILLIAM	Env Eng	09 GEIB, DANIEL		GIS
10 MCBRIDE, IAN	Env Eng	09 JONES, COLIN		Env Eng
10 TAYLOR, ERRON	GIS	09 MOODY, KELCEE		Env Eng
		09 RATHBUN, ERIC		Hum Geo
		09 TIMME, REED		Hum Geo
		09 WALSH, JACOB		GIS
Company D2		10 COMASCO, VINCENT		Env Geo
09 DIETER, NICHOLAS	GIS	10 MOFFETT, JOHN		Hum Geo
09 SCARLATO, SARAH	Hum Geo	10 RUMPH, GLENN		Env Geo
10 ANDERSON, KERI	Env Sci	10 SAXBY, PATRICK		Hum Geo
10 ANEZ, RICHARD	GIS	10 STORTINI, NICHOLAS		Env Sci
10 BUETTGENBACH, AUSTIN	GIS	10 TAFONE, MICHAEL		Env Eng
10 MCMANUS, SIMON	Hum Geo			
10 ROSS, GEOFFREY	GIS			
10 WOLFF, ELI	Hum Geo			
Company E2				
09 ALLISON, HENRY	Env Geo			
09 FLORES, STEPHAN	GIS			
09 HABERTHUR, LAUREN	Env Sci			
09 O'CONNOR, RODERIC	Hum Geo			
09 VIGIL, CHRISTOPHER	GIS			
10 MOSE, VANESSA	Env Sci			
10 CAPOMAGGI, MICHAEL	Hum Geo			

THIRD REGIMENT MAJORS

Company A3			Company E3	
09 COHAN, CARY	Hum Geo	08 FLOWERS, ERIC	GIS	
09 LEWIS, MADELINE	Env Eng	09 BRAMLAGE, JUSTIN	GIS	
09 TAYLOR, KRISHEL	Env Eng	09 DEPPA, ROBERT	Hum Geo	
10 CUPRAK, GRANT	GIS	09 ETCHELLES, PAO MEI	Env Geo	
10 HASHIM, MUHAMAD	Env Geo	09 HOOD, JOHN PAUL	GIS	
10 SEESE, MICHAEL	GIS	09 NAYLOR, MICHAEL	Env Geo	
10 SINGLETARY, JERAMY	GIS	09 OLSON, EDWARD	Hum Geo	
10 TURNBULL, JONATHAN	GIS	09 WRIEDEN, KRISTOPHER	Hum Geo	
10 WASILEWSKI, MATTHEW	Hum Geo	10 MCDERMOTT, KYLE	Env Geo	
Company B3			Company F3	
08 FRITZ, DANIEL	Env Geo	08 CAPOZZI, ANTHONY	Hum Geo	
09 BAZEMORE, THOMAS	GIS	09 HEIMEL, NATALIE	Env Geo	
09 JONES, ORRY	Hum Geo	09 PARTIN, WILLIAM	Env Geo	
09 KOHTZ, SHANE	Hum Geo	09 THURMAN, BRANDON	Hum Geo	
09 KEARNES, MICHAEL	Env Eng	10 GARDNER, NATHAN	Env Sci	
09 RUETH, GREGORY	Hum Geo	10 GOODWIN, CHRISTOPHER	Env Sci	
10 HIGGINBOTTAM, PATRICK	Env Geo	10 HOWE, SCOTT	GIS	
10 JONES, JACOB	Env Geo	10 NIEDBALA, RICHARD	Env Eng	
10 MAGANA, MELISSA	Env Sci	10 ROWE, KENNETH	Env Geo	
10 NG, ANDREW	Env Eng	10 SIZEMORE, JONATHAN	Env Sci	
10 SPENCER, GREGORY	Env Geo	10 WILLIAMS, PHILLIP	GIS	
Company C3			Company G3	
09 COMSTOCK, DEANNA	Hum Geo	09 LEWIS, ROBERT	Hum Geo	
09 FRIEDEWALD, PETER	GIS	09 MAYER, AMY	Env Geo	
09 NEASHAM, RACHEL	Hum Geo	09 POTTER, JAMES	Env Geo	
09 OCHOCKI, RYAN	GIS	09 ROVERO, PATRICK	Hum Geo	
10 JOHNSON, ANDREW	GIS	10 HARRELL, KRYSTLE	GIS	
10 POPE, DEREK	GIS	10 KRUGER, JASON	Hum Geo	
Company D3			10 NORRIS, ADAM	Hum Geo
09 PHILLIPS, ERIK	Env Sci	10 TALKINGTON, BRETT	Env Geo	
09 REYES, DAVID	Env Sci	Company H3		
09 VANDAM, NICHOLAS	Env Sci	09 HERRICK, MARK	GIS	
10 LOHAN, JONATHAN	Env Sci	10 BRADLEY, LOGAN	Env Geo	
10 REITER, ZACHARY	GIS	10 LENTZ, RICKY	Env Geo	
10 RILEY, TENISHA	Hum Geo	10 NASH, ANTHONY	Env Geo	
		10 ZALESKI, HENRYK	Env Geo	

FOURTH REGIMENT MAJORS

Company A4		Company E4	
09 ABRAHAM, TAMARA	Hum Geo	09 BOTT, TYLOR	Env Eng
09 COUNTS, BRANDON	Hum Geo	09 KOLLER, HEIDI	Env Geo
09 DILLER, DESIREE	Env Eng	09 MCCOLLUM, CALEB	Env Geo
10 CARL, BRYSON	Hum Geo	09 QUINK, TYSON	GIS
10 GONSKI, TIMOTHY	Env Eng	09 XIE, YINCHAO	Hum Geo
10 MERGEN, RYAN	Hum Geo	10 CHEUNG, SIU	Hum Geo
Company B4		10 QUINN, DAVID	Hum Geo
08 BULLOCK, MARIO	Hum Geo	10 TAYLOR, KATHERINE	Hum Geo
09 MCINTOSH, MEGAN	Hum Geo/GIS	Company F4	
09 ROBINSON, JAMAL	Hum Geo	09 CASLEN, JEFFREY	Env Geo
09 TOMSEN, ERIK	GIS	09 TURNER, CHRISTOPHER	Env Sci
10 BOXLER, BRANDON	GIS	09 VAUGHAN, LOGAN	Env Sci
10 BROWN, BRETT	GIS	10 BROWN, LERAE	Env Sci
10 GAULIN, CHRISTOPHER	Env Geo	10 NAPOLITANI, AMANDA	Hum Geo
10 GILMORE, LARSON	Hum Geo	Company G4	
10 ROBINSON, JAMAL	Hum Geo	09 DUKE, DIANA	Env Geo
10 STRATTON, NATHAN	Hum Geo	09 LEAHY, WILLIAM	Env Geo
10 SZCZUR, JOSHUA	GIS	09 TAVEL, AMANDA	Env Geo
Company C4		10 JOHNSON, GRANT	Env Geo
09 KORVIN, MICHAEL	GIS	10 LEAHY, WILLIAM	Env Geo
09 LUBBA, NATHAN	Hum Geo	10 MCSHEA, THOMAS	GIS
09 WOOD, JONATHAN	Env Geo	10 MORGAN, ASHLEY	Hum Geo
10 CARSTENSEN, MATTHEW	Hum Geo	Company H4	
10 SHEEHAN, NATHANIEL	Env Eng	09 BREINLING, RACHAEL	Hum Geo
Company D4		09 DOUGLAS, JONATHAN	GIS
09 CHASTEN, RANDALL	Hum Geo	10 BOCCUTI, ROCCO	Hum Geo
09 AGNOR, BENJAMIN	GIS	10 BUONFORTE, MARK	GIS
09 CHRISTIE, ROBERT	GIS	10 MCCHRYSTAL, JOSHUA	GIS
09 JACOBSEN, CHRISTOPHER	Env Eng		
09 MOSCHEL, REBECCA	GIS		
09 PLUMSTEAD, JOHN	Env Geo		
09 WEGMAN, ROXANNE	Env Geo		
10 SOVIK, SHAWN	GIS		

West Point Class of 2011 "For Freedom We Fight"

The Class of 2011, numbering 1,254 new cadets, includes 1,244 United States citizens and 10 international cadets. Cadets were appointed by Congress from every state in the United States, as well as others appointed from military service sources. The international cadets are from the countries of Albania, Bulgaria, Cambodia, Columbia, Dominican Republic, Georgia, Kenya, Korea, Paraguay, Tonga.

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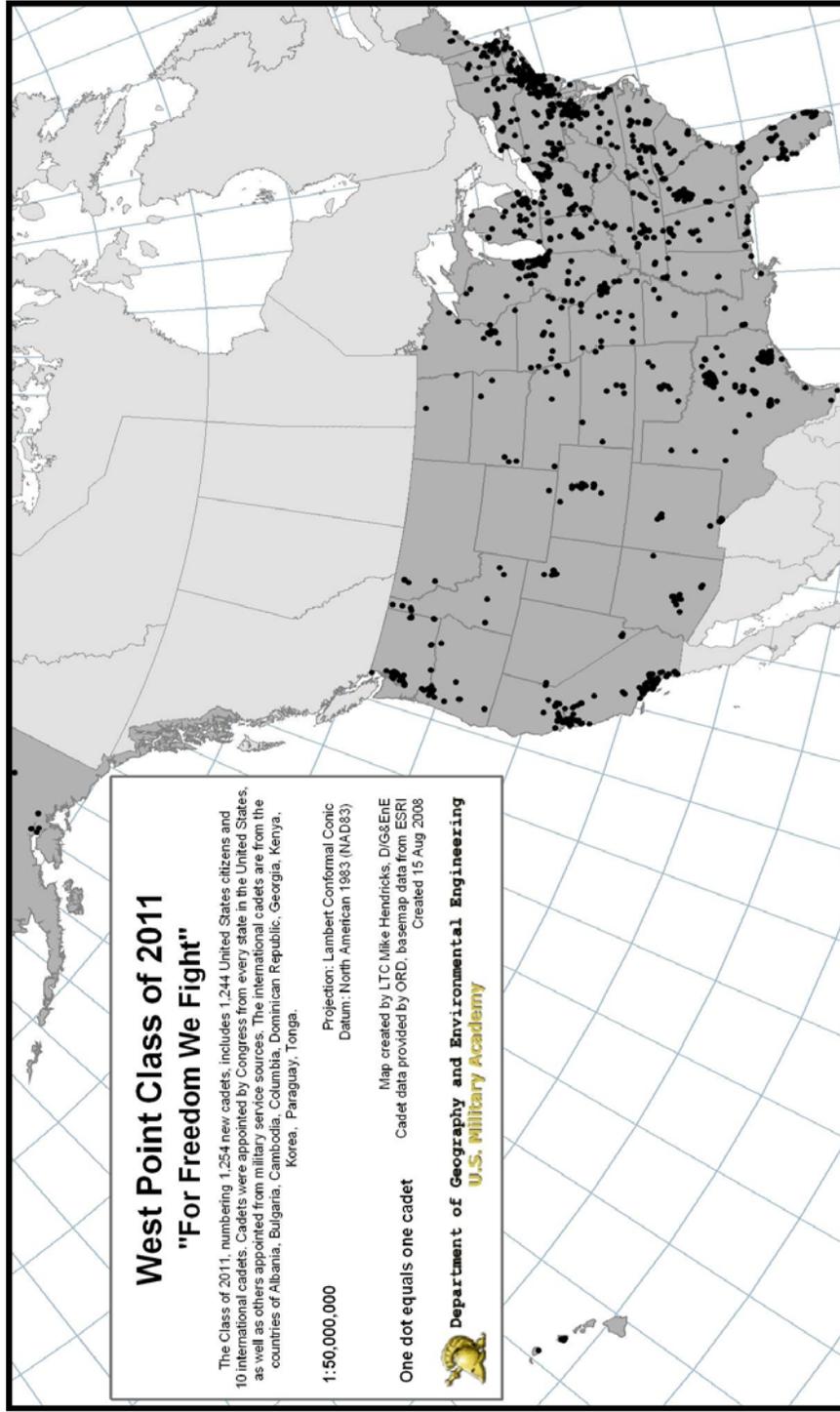
Projection: Lambert Conformal Conic
Datum: North American 1983 (NAD83)

Map created by LTC Mike Hendricks, DIG&ENE
Cadet data provided by ORD, basemap data from ESRI
Created 15 Aug 2008

One dot equals one cadet



Department of Geography and Environmental Engineering
U.S. Military Academy





Department of Geography and Environmental Engineering



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