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THE MINERVA RESEARCH INITIATIVE:

The Minerva Research Initiative connects faculty and researchers in departments and research centers by weaving critical research agendas together. Often the effort leads to holistic outcomes that clarify multi-dimensional issues. This effort enhances West Point's research competitiveness among other universities and creates a dynamic environment for cadets as they move into leadership roles.



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Learn More about the Minerva Research Initiative

<http://minerva.dtic.mil/>

<http://www.usma.edu/minerva/SitePages/Home.aspx>



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PURPOSE:

This framework identifies West Point’s Minerva Research Initiative within its current initial structure. It presents the Department of Defense-sponsored Minerva Chair Program through the Office of the Secretary of Defense, West Point’s visiting scholars, ongoing collaborations, research development, teaching, cadet involvement, and key opportunities.

BACKGROUND:

In 2011, the United States Military Academy was awarded two Minerva Chairs to be filled by two Minerva Fellows. The Minerva Fellows' research will develop models of society to account for the connectivity of people, information, and resources through social, cultural, political and spatial systems. These initiatives lay the foundation for understanding how cultural norms and extreme ideologies are born and maintained and further how these failed communities can be stabilized and prosper. The Department of Geography and Environmental Engineering is leading the project titled “Social, Spatial and Cultural Topologies of African Villages” that will model socio-cultural development in the context of understanding conflict and cooperation in Africa to distinguish what US policy makers should consider over the coming decade through human geography research. The Department of Behavioral Sciences and Leadership is heading the research project titled "Social and Cultural Network Topology of Asian Communities" that will focus on evolution of social network structures within the Muslim world to provide insight into how cultural norms and extreme ideologies are born and maintained. These interdisciplinary efforts are coordinated through the cooperation and support of the Network Science Center at West Point (NSC) and the Institute for Innovation and Development (IID). <http://www.usma.edu/minerva/SitePages/Home.aspx>.

“Just as our military forces could not effectively operate without understanding the physical terrain and environment, detection of radical actors and regime disruptions is limited by our understanding of the cultural and political environments where those threats develop. The Minerva Research Initiative, initiated by former Secretary Gates in 2009, seeks to build deeper understanding of the social, cultural, and political dynamics that shape regions of strategic interest around the world. Specific efforts range broadly, from establishing theories about the relationship between violence and the provision of developmental aid in MENA to understanding how climate change could make African countries more vulnerable to humanitarian disaster and violent conflict. Deeper understanding of global populations and



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their variance will yield more effective strategic and operational policy decisions. As the nascent program continues to grow, university-driven Minerva research will further enable critical social and cultural understanding to help decision makers effectively address today's known and tomorrow's unknown challenges." <http://minerva.dtic.mil/>.

Department of Defense Minerva Research Initiative's topics are categorized within the following seven "areas":

1. Strategic Impact of Religious and Cultural Changes
2. Terrorism and Terrorist Ideologies
3. Science, Technology and Military Transformations in China and Developing States
4. National Security Implications of Energy and Environmental Stress
5. New Theories of Cross-Domain Deterrence
6. Regime and Social Dynamics in Failed, Failing, and Fragile Authoritarian States
7. New Approaches to Understanding Dimensions of National Security, Conflict, and Cooperation

To show the larger picture of the Minerva Initiative, we give some categorization to the current research efforts. The 2011 Minerva Conference divided these seven topics into "areas" of interest <http://minerva.dtic.mil/doc/MinervaResearchSummaries2011.pdf>. The number of presentations given in each category is listed in parentheses:

Change (3)

- a. *Strategic Impacts of Cultural and Religious Change*, Minerva Chair from Harvard University and through the NWC.
 - i. Publications: 1 article under review, 1 book manuscript, country profiles on Egypt, Iraq and Pakistan.
 - ii. Sharable data resources: 1
- b. *Cultural Knowledge and National Security*, Minerva Chair from NWC.
- c. *Finding Allies for the War of Words: Mapping the Diffusion and Influence of Counter-Radical Muslim Discourse*, Large Consortium Efforts from Arizona State University.



- i. Publications: 4 refereed journal articles, 11 non-refereed publications, 2 technical reports/white papers, 6 published conference proceedings, 3 articles under review at refereed journal publications.
- ii. Conferences/Workshops: 25 workshops and conferences, received one award.

Terrorism (3)

- a. *Al-Qaida, the Tribes, and the Government: Lessons and Prospects for Iraq's Unstable Triangle*, Minerva Chair from the Marine Corps University.
 - i. Publications: 1
- b. *Terrorism, Governance, and Development*, Large Consortium Effort from Princeton University, University of California at San Diego, Stanford University and Yale University; PM through the AF Office of Scientific Research.
 - i. Publications: 6 and 3 forthcoming.
 - ii. Sharable data: GIS data, labor force surveys; to be housed at the ESOC website.
- c. *Mapping Militants: The Organizational Dynamics of Violent Extremist Organizations*, Small Team Effort from Stanford University.
 - i. Sharable Data: Maps with Organization profiles (available through Stanford University and Minerva's Conference Booklet).

China (1)

- a. *The Study of Innovation and Technology in China (SITC)*, from University of California San Diego, Stockholm International Peace Research Institute Stanford University and Hoover Institute; PM at the ARO.
 - i. Publications: 6 and 18 policy briefs and annual policy brief compendiums
 - ii. Sharable Data: Network analysis of Chinese corporations, state bodies, investment sources and technologies (Avail Mid-2012).



Energy/Environment (3)

- a. *Energy and Environmental Security*, Minerva Chairs from Air University.
 - i. Publications from this research: 13 total, 8 in 2011, 3 forth-coming and 2 in 2010.
- b. *Climate Change and African Political Stability Program (CCAPS)*, Large Consortium Efforts from The University of Texas at Austin.
 - i. Publications: 1
 - ii. Sharable data resources: 4
- c. *Adapting to Water Scarcity: River Treaties and Militarized International Conflict*, Small Team Efforts from the University of Colorado, Boulder.
 - i. Publications: 2
 - ii. Sharable data resources: 1

Deterrence (4)

- a. *Why Did Saddam Seek Nuclear Weapons?* Minerva Chair from the Marine Corps University.
 - i. Publications: 1 internal Marine Corps University Press article.
- b. *Conventional Arms Control and 21st Century Deterrence*, Minerva Chair from the US Army War College.
- c. *Explorations in Cyber International Relations*, Large Consortium Effort from MIT.
 - i. Publications: 25 publications and 100 working papers.
 - ii. Sharable data resources: data sets on politics on the Internet, case study data on high profile cyber incidents, and comparative security metrics. An online repository of data resources is contained in the ECIR team's Data Dashboard project, designed to provide scholars, policymakers, IT professionals, and other stakeholders with a comprehensive set of data on national-level cyber security, information technology, and demographic data.



- d. *Strategy and the Network Society*, Small Team Effort from the Department of War Studies, King's College London (D. Betz, was not listed as an awardee, however was a presenter).
 - i. Publications: 3, all forthcoming (at time of conference).

Dynamics (10)

- a. *Tribes, Society, and the State in Saudi Arabia*, Minerva Chair from the Marine Corps University.
 - i. Panel: Organized a panel on tribes in the Middle East for British Middle East Studies Association conference papers from the panel to appear in *The Maghreb Review* (London).
- b. *Can Federalism Work in Iraq?*, Minerva Chair from INSS, NDU.
 - i. Publications: 5
- c. *The Emergence of the Eurasian Migration System*, Large Consortium Effort, from Social Science Research Council, University of Texas Austin, University of Arizona and Woodrow Wilson Center.
 - i. Publications: 2 and 5 forthcoming and under review or in preparation.
 - ii. Sharable Data: Legislative, Demographic and Survey data bases.
- d. *Modeling Discourse and Social Dynamics in Authoritarian Regimes*, Large Consortium Effort, from Cornell University of Texas Austin and University of Memphis.
 - i. Publications: 7
- e. *Deciphering Civil Conflict in the Middle East*, Large Consortium Effort, from Ohio State University.
 - i. Publications: 5
 - ii. Sharable Data: 3
- f. *Status, Manipulating Group Threats, & Conflict within and between Groups*, Small Team Effort, from University of Guelph and Indiana University; PM: NSF
- g. *The Evolution of Revolution*, Small Team Effort, from VA Military Institute and VA Commonwealth University; PM: NSF



- h. *How Politics Inside Dictatorships Affects Regime Stability and International Conflict*, Small Team Effort, from UCLA, Penn State; PM: NSF
 - i. Publications: 4 (updated data was used in presentations for Political Instability TF in Middle East and North Africa, as well as a UN project).
 - ii. Sharable Data: Regime data (baseline and endline, types and the predicated risk of the types –not avail until Fall 2012).
- i. *Iraq's Wars with the US from the Iraqi Perspective*, Small Team Effort, from Monterey Institute for Policy Studies, California State University; PM: ARO.
 - i. Publications: 6
- j. *Fighting and Bargaining over Political Power in Weak States*, Small Team Effort, from University of California Berkeley; PM: NSF.

New Approaches: (4)

- a. *Visualizing Agent-Based Political Simulations*, Small Team Effort from Tufts University; PM: NSF.
 - i. Publications: 4
- b. *Merging Competing Militaries after Civil Wars*, Small Team Effort from Rutgers University.
 - i. Publications: 1 under review
- c. *Emotions and Intergroup Relations*, Small Team Effort, San Francisco State University, SUNY Buffalo; PM: AF Office of Scientific Research.
- d. *Engaging Intensely Adversarial States: The Strategic Limits and Potential of Public Diplomacy in U.S. National Security Policy*, Small Team Effort from School of International Relations, University of Southern California; PM: NSF.

Minerva Second Annual 2011 Conference Statistics:

- There was a 79% presenter turn-out for the Minerva Conference in 2011 and 21% non-presenter outcome.
 - 29 total awards were given in 2009 and 2010.



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- 23 of the 29 awardees did present at the Conference
- 6 of the 29 awardees did **not** present at the Conference
- *Minerva Chair 2010 Awards:* There was a total of 5 Minerva Chairs awarded in 2010. All of them presented at the Minerva Conference in 2011. In some cases, two or three different presentations were given from one fellow.

MINERVA FELLOWS AND RESEARCH POSITION:

OSD currently suggests the ideal time-line of a Minerva Fellow residence to be two to four years. West Point's Fellows will conduct research based on the awarded proposals in 2011 through 2013, with the potential for further research extensions. The Minerva Fellows will institute ambitious research agendas for their respective proposals and updates. The aim will be to present research results at the 2012 Minerva Conference in Washington, D.C., as well as other academic platforms of interest. The Conference allows Minerva Chairs and Researchers the opportunity to present their work.

West Point's Visiting Minerva Scholars:

- Dr. Makame Muhajir is the Geography and Environmental Engineering Fellow for the *Social, Spatial and Cultural Topologies of African Villages* Research Project.
 - Lecturer in African Geography and African History, University of Kansas.
 - Research:
 - Integrated collaborative urban and rural development programs in the urbanizing world and their localization within sub-Saharan African cities, Middle East, Asia, and Australasia.
 - Evaluation of urban, political, and cultural dynamics within African indigenous environments, among other geographical study areas.
 - Director of Surveys and Urban Planning Department in Zanzibar, Tanzania, 1994 to 2001.
 - Director of World Heritage City of Zanzibar's Urban Conservation Program in 2001 to 2005.
 - Ph.D. in Geography (2011), University of Kansas; specializing in human geography and urban planning fields. Masters Degree (1993), Curtin University and Bachelors



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Degree (1985), Ardhi University in Dar es Salaam, Tanzania: Urban Planning, Environmental Management, Cartography, Urban Design and Spatial Analysis.

- Dr. Luke Gerdes is the Behavioral Sciences and Leadership Fellow for the *Social and Cultural Network Topology of Asian Communities* Research Project.
 - Research:
 - International Center for Political Violence and Terrorism Research in Singapore: Studied extremism in Southeast Asia.
 - Center for Computational Analysis of Social and Organizational Systems (CASOS) at Carnegie Mellon University: Studied Global salafist movement.
 - Strategic Studies Institute of the U.S. Army War College: Visiting researcher facilitated the completion of a dynamic network model that examines operational, logistical, financial, ideological, training, familial, and friendship ties among individuals and organizations.
 - Featured Research: *On the Edge of al-Qaida: An Analysis of al-Qaida's Changing Role in Global Terror*.
 - Ph.D. (2012) and Masters (2005), University of Pittsburgh. Academic areas include; Foreign Policy, National Security, and International Development and a Bachelor of Arts (1999) from Yale University.

- Ms. Kristine Ringler is West Point's Minerva Initiative's Research Associate.
 - Research:
 - Impact evaluation for development initiatives in multidimensional programs.
 - Qualitative socio-cultural perception data collection, analysis and evaluation of development programs.
 - Masters Degree in Global Policy for International Development (2009) from the Humphrey Institute of Public Affairs, at the University of Minnesota. Bachelor of Science (1999) in Mass Communication from North Dakota State University.
 - US Army Civil Affairs Reservist from 2002 to 2010, deploying to Iraq (2004 - 2005) and Kosovo (2007 - 2008).



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- Conducted on the ground research in the Basra and Ninewa Provinces of Iraq for the Army, the State Department, US Agency for International Development (USAID) and US Department of Agriculture (USDA) – (2010).
- Instructor and developer on the District Stability Framework for USAID in Afghanistan (2011).

MINERVA RESEARCH:

Research and Development at West Point is a growing asset. “It provides context to the classroom; is central to a vibrant and current faculty; and is one way West Point connects to the Army and the Nation. Our students are driven, our faculty is world-class, and the Army applies that combination to its hardest problems. West Point’s faculty also partner with forward deployed units, DoD research organizations, academia and industry to do research on real world problems and bring difficult projects to the classroom.”
<http://www.usma.edu/research/SitePages/Home.aspx>.

The Institute for Innovation and Development: Research activities at the Academy are encouraged in order to enhance the quality of the cadet educational experience, promote the professional development of the faculty, and provide support to the Army and to enhance the reputation of the Academic Program. Research Operations supports the Associate Dean for Research by providing project management; strategic communications and outreach; departmental and research center collaboration; funds processing and budgeting; and program assessment. <http://www.usma.edu/innovation/SitePages/Home.aspx>.

Strategy in research is essential. Research agendas can be short- and long-term goal-centric and remain in balance with desired outcomes. Products derived from research can take the form of setting the ground work for future data collection, reports from partner researchers, collaborating research centers, military partners, data repositories, and cadet research. All of which will contribute to long-term goals and enhancing the outcome of publications.

Publications and peer-reviewed journals are critical in research. Equally important is building a strong bridge between academia and making the research operational. This component parallels the concept of Minerva: to enable critical social and cultural understanding to help decision makers effectively address today's known and tomorrow's unknown challenges. This



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will enable a better understanding of socio-cultural divides that remain in countries of National Security interests.

Minerva at West Point intends to connect theory through rigorous application and operational context. In doing so, it will reach its goals to:

- Develop models of society to account for the connectivity of people, information, and resources through social, cultural, political and spatial systems.
 - Lay the foundation for understanding how cultural norms and extreme ideologies are born and maintained.
 - Learn how these failed communities can be stabilized and prosper.
- ***Minerva at West Point Workshop: “Understanding Cultural Networks in Africa and Asia for National Security”*** will spearhead West Point’s Minerva Research on April 16 and 17, 2012. Sessions focusing on Africa and Asia will encompass topics of Geography, African Studies, Urban Planning, Asian Terrorism Trends, Social Network Analysis, History, and more. Scholars, practitioners, military and civilian experts, and USMA cadets will come together for an all day workshop to discuss critical matters in National Security and participate in forming critical research.
- ***Opportunities to partner and collaborate*** in future Minerva-related research are on-going. Researchers, both internal and external to USMA can become a part of the project by submitting proposals to the Program Manager and Research Operations Office.

TEACHING:

To complement the mission of Minerva to provide socio-cultural research, the Fellows will offer seminars in African Studies, Geography, Social Network Analysis, and Understanding Islamic Ideologies to cadets during the fall of 2012 and spring 2013 semesters. This will have the opportunity to include fieldwork results from Tanzania and Indonesia.



SYNERGIES:

The USMA Minerva Research Initiative intends to develop inter-departmental partnerships and synergies within multiple disciplines and throughout the Academy. This will contribute to the Minerva and USMA missions. The workshop launches USMA's research efforts and builds connections in the DoD Minerva community, which provides the intellectual foundations for

progress in understanding regional connectivity of people, information, and resources through social, cultural, and spatial dynamics.

Current Collaboration Partners include:

- Network Science Center
- Institute of Innovation and Development
- Department of Geography and Environmental Engineering
- Department of Behavioral Sciences and Leadership
- Department of History
- Department of Mathematics
- Department of Electrical Engineering
- Department of Social Sciences
- Center for the Study of Civil-Military Operations

Structure of Minerva at West Point allows for all Academic, Instructional Departments and Centers of Excellence to contribute to the research initiative. USMA is currently structured around thirteen Academic Departments, two Military and Physical Instructional Departments and thirty-six Centers of Excellence. Its foundation is centered on teaching the Corp of Cadets, while providing opportunities through leadership.

Instructional Departments

Academic Departments

Military Instruction	Behavioral Sciences & Leadership
Physical Education	Chemistry and Life Science
	Civil & Mechanical Engineering
	Electrical Engineering & Computer Science
	English & Philosophy
	Foreign Languages



	Geography & Environmental Engineering
	History
	Law
	Mathematical Sciences
	Physics & Nuclear Engineering
	Social Sciences
	Systems Engineering

Centers of Excellence

Cadet Advanced Science and Technology Learning Environment	Conflict and Human Security Studies Program
Cartographic Cell of Excellence	Cyber Research Center
Center for Advanced Technologies and Education and Training	Humanities and Creative Arts Program
Center for Combating Terrorism	Institute for Innovation and Development
Center for Data Analysis & Statistics	Lifecycle Acquisition Management Institute
Center for Enhanced Performance	Math History (INACTIVE)
Center for Environmental & Geographical Science	Mathematical Sciences Center of Excellence
Center for Faculty Development	Network Science Center
Center for Faculty Excellence	Nuclear Science and Engineering Research Center
Center for Holocaust and Genocide Studies	Office of Economic and Manpower Analysis
Center for Innovation and Engineering	Operations Research Center
Center for Languages, Cultures, and Regional Studies	Photonics Research Center
Center for Leadership and Diversity in STEM	US Army Space and Missile Defense Command Research and Analysis Center
Center for Molecular Science	West Point Center for the Rule of Law
Center for Nation Reconstruction and Capacity Development	West Point Leadership Center
Center for Oral History (includes other D/History research efforts)	West Point Negotiation Project
Center for Physical Development Excellence	West Point Simulation Center
Center for STEM Education	
Center for the Study of Civil-Military Operations	
Center for the Advancement of Leader Development & Organizational Learning	



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Opportunities within other departments are developing among the Social Science disciplines. Enhancing the interdisciplinary culture of the Academy is an important goal of this research effort at USMA. Particularly as West Point's growing research centers take shape with new and evolving objectives. The Minerva Research Initiative connects departments and research centers in order to bridge critical research agendas together to achieve holistic outcomes that reach multi-dimensional issues that will make West Point's research competitive among other universities and create a dynamic environment for cadets as they move into leadership roles.

CADET RESEARCH:

Cadet involvement through Minerva research is essential. Cadets will have the opportunity to participate in West Point's Minerva research through course work, projects, study abroad internships and direct field work. This will support the cadet's academic interests, while mentoring their research endeavors and applying their skills to solve real problems.

- *Academic Individual Advanced Development (AIAD) Internships* are conducted during the summer months and allow the cadet to schedule this activity around the Military Individual Advanced Development (Airborne, Air Assault, etc.) and Cadet Summer Leader Detail programs. Opportunities are vast; faculty members encourage and support cadets to tailor individual research for a broad range of educational and military goals. Current programs may include work with different organizations such as the Qatar Foundation, Faculty of Islamic Studies, Rand-Policy, Texas A&M, and Georgetown Qatar Universities and the U.S. Department of State. The programs offered represent the ultimate in opportunities for immersion in a non-standard experience and will benefit a cadet's military and academic goals.



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