NEW GRADUATE DEGREE OR GRADUATE CERTIFICATE FORM D

Date: 4/9/2018

Emile Nakleh
(Name of individual initiating Graduate Degree or Graduate Certificate)

Director, Global & National Security Institute
(Title, position, telephone number)

abucr@msn.com
(Email address)

Global & National Security Institute
(Department/Division/Program)

*Allow up to one year for the process to be completed for a certificate, and 18 months for a degree.

Note: Proposals for new graduate degrees or graduate certificates need to follow an approved format. Please call the Office of Graduate Studies and ask for an outline. Revisions of graduate degrees and some new certificates also may need state approval, depending on the extent of changes proposed. Please consult the Office of the Provost for advice prior to initiating this form.

Attach the following required documents:

1. Executive Summary.
2. Program Proposal (in the approved format).
3. Catalog Description (to include program curriculum).
4. Graduate Program Projected Costs (only for new degrees).
5. Library Impact Statement.

Does this new degree affect any existing program? Yes ☐ No ☒ If yes, attach statement.

Proposed date to admit new students: Term Spring Year 2019

Required Signatures:

		Date
Department Chair		Date
College Curricula Committee		Date
College or School Dean	_Julie Coonrod (also see letters: A&S, SoE, ASM)_	Date 4/9/2018
Dean of Library Services	_Kem Clark_	Date 4/10/18
Office of the Registrar—Catalog		Date 4/9/18
FS Graduate Committee	_Deborah Cohen / ???_	Date 04/19/18
Dean of Graduate Studies	_Julie Coonrod_	Date 04/19/18
FS Curricula Committee		Date
Office of the Provost		Date
Faculty Senate		Date
Board of Regents		Date

Additional Approvals for Degrees:

	Date
Board of Regents	Date
Council of Graduate Deans	Date
Academic Council of Higher Education	Date
Higher Education Department	Date
State Board of Finance	Date

University Libraries

September 6, 2017

Dr. Emile Nakhleh,
Director, Global and National Security Policy Institute

Ms. Nicole Dopson,
Senior Financial Officer, Office of the Provost
University of New Mexico

Dear Emile and Nicole,

The library has reviewed the Global and National Security Policy Institute's very interesting proposal for a Master's of Science in Global and National Security. The library has been supporting the teaching and research needs of the classes taught by other academic units and should not require any new resources to continue to support these classes – provided the library collections budget does not decrease significantly. However, it appears that some of the new topic courses included in Appendix III of this proposal will require a number of journals and newspapers that we do not currently have or for which we only have older issues (no current content). Since the sample syllabi only covers a few of the proposed new topic classes it is difficult to predict how much additional content that the library may need to subscribe to or acquire to support these new classes.

When another faculty member is added in Year 2, it is possible that new or additional library resources will be needed to support this person's specific research areas. Since we operate with limited resources, the library may need to cancel some existing resources to meet the need for new resources.

Sincerely,

Susanne K. Clement
Director of Collections
University Libraries
sclement@unm.edu
505-277-5176

cc:
Richard Clement, Dean of Libraries
Dr. Mark Emmons, Associate Dean of Public Services, University Libraries

Master of Science in Global and National Security

Global and National Security Policy Institute, Office of the Provost

New Graduate Degree

Form D Review

Dr. Emile Nakhleh, Ph.D.
Director, Global and National Security Policy Institute
enakhleh@unm.edu
505-385-8334

Nicole Dopson
Director, Financial Operations for Academic Affairs
nicole14@unm.edu
505-277-8126

Master of Science in Global and National Security

Global and National Security Policy Institute, Office of the Provost

September 1, 2017

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EXECUTIVE

SUMMARY

Master of Science in Global and National Security
Global and National Security Policy Institute, Office of the Provost
September 1, 2017

Executive Summary

This application is for a non-traditional, interdisciplinary Master of Science degree in Global and National Security (MSGNS), which consists primarily of online graduate modules (combining two courses each) and in-person meetings. **Modules carry six credits each, are team-taught by two faculty members, and usually correspond to two courses (mostly "Special Topics") in the catalog of the departments offering the modules.** The MSGNS, designed primarily for individuals already in the workforce, aims at providing prospective students—from government, government contractors, and private corporations—with a broader context of security issues that affect their work. UNM traditional students interested in careers in this area could also enroll in this degree program. At least four important factors underscore the uniqueness of this initiative: First, UNM's proximity to, and close collaboration with, two world renowned nuclear and engineering laboratories, Los Alamos and Sandia. Second, the MSGNS is based on a comprehensive definition of global and national security, which underpins the mission of GNSPI and the MSGNS degree. This definition encompasses technology, cybersecurity, nuclear policy, global health, terrorism, cultural and legal dynamics, leadership and decision making, and natural resources. Third, a belief that the United States is not an island onto itself and that what happens globally—economically, politically, militarily, and culturally—directly affects the security of the United States and the safety of its interests and citizens—diplomats and the military—overseas. Fourth, what happens globally affects New Mexico and its government, economy, educational institutions, and the citizens of the state.

The MSGNS degree plans to offer a quality academic and research program that would be of tangible use to the workforce, mostly online, and at a reasonable cost. In comparison with other regional and national universities that offer programs in national security—for example, the University of Arizona, Arizona State University, the University of Denver, the University of Texas at Austin, Texas A & M, the University of San Diego, Georgetown University, and George Washington University—the University of New Mexico's program is more comprehensive in nature. While maintaining high quality, it also happens to be less costly. Whereas other universities focus on a single theme, such as terrorism, diplomacy, nuclear proliferation/nonproliferation and nuclear policy, cyber, trade, infrastructure resiliency, etc., the UNM program is all encompassing in its approach to global and national security issues and rests on the belief that these issues are interconnected and can no longer be viewed from a compartmentalized perspective. When a lab engineer, for example, visits a country to look at its verification policies and practices in complying with domestic and international treaties, standards, and regulations, a comprehensive knowledge of that country's culture, decision making, leadership, and geopolitical security threat perceptions will help provide the engineer

with a more nuanced understanding of that country's overall approach to domestic and international treaties, standards, and regulations. The MSGNS degree at UNM aims at providing such a broad context to the workforce.

The demand for graduates with expertise in national and global security is on the rise, given all the developments occurring daily in the world. The competing institutions in this field notwithstanding, the value of the UNM program lies in its comprehensiveness and proximity to the two major labs—Sandia and Los Alamos—which makes it possible for a student from the workforce to continue one's career while developing important knowledge and skills in an area.

The revenues for the program come from different sources: tuition revenue, UNM subsidy and support from the national and global security companies both in NM and ultimately nationally since these are the employers that we serve. Revenues are estimated at approximately $300K, $375K and $450K in the first three years. Expenses in these years include the director's salary, faculty stipends, module development, a distinguished lecture series, conference and symposium expense, travel, etc.

The proposed MSGNS has received an impressive number of endorsement—six letters from the national security business community in New Mexico, including Los Alamos and Sandia national labs; a letter from a UNM Regent; two letters from the Provost and the Senior Vice Provost; two letters from the Deans of Engineering and Arts & Sciences; a letter from a Distinguished Professor who has taught two modules in the program; and two letters from two students who have taken the modules.

Briefly the letters agree on several points: Viewed as competition for other university-based national security programs, the proposed MSGNS degree will be an important addition to the UNM educational program—broader available coverage, high quality, and modest coast. Under the leadership of the Global and National Security Policy Institute and the Master of Science degree in Global and National Security, UNM can be a national model and resource that will have resonance beyond the borders of New Mexico. The program brings together engineers focused on technical aspects of security policy and social scientists and humanists who can provide insights into the global security consequences of climate change, racial, ethnic, and religious divisions, global inequities, societal legal issues, and other broad causal forces shaping patterns of conflict and cooperation around the globe.

A student could obtain an MSGNS by completing five six-credit hour modules, plus a three-credit pathway course for a total of 33 credit hours. Prospective students in the program could finish their course of study and receive the degree in 12-18 months.

Imagined Stories of Participants

Faculty- A faculty member teaching in the program would become more familiar with the global aspects of her/his topic and would be afforded opportunities to apply for research grants, which otherwise would not have been available. Through teaching and research, such a

faculty member would become a force multiplier in deepening the students' expertise and interest in global and national security issues and their search for career enhancement.

Students- Although the program targets potential students from the workforce, UNM students could also enroll in it. Workforce students would benefit from the program in at two ways: career enhancement and deepening expertise about other countries and cultures as well as the gathering threats and challenges to national security, including hacking and other sources of threat. UNM students with a graduate degree in global and national security would be able to seek career opportunities in US Government agencies and departments—intelligence, diplomacy, the military, commerce, global education, the national nuclear labs—and in global nongovernmental organizations and private voluntary associations.

PROGRAM

PROPOSAL

Master of Science in Global and National Security
Global and National Security Policy Institute, Office of the Provost
November 1, 2017
Program Proposal

The proposed Master of Science degree in Global and National Security recognizes the rich research and educational programs offered at UNM that are related to global and national security, broadly defined. The global and national security initiative and the new degree will help put UNM on the national—and even global—map as a "national security" university and will improve our students' competitive edge as they seek employment and career advancement opportunities, nationally and globally. This degree is win-win for UNM and its students, the wider Albuquerque and New Mexico communities, the US government national labs, and the broader business community. Our two neighboring Department of Energy world-class national labs—Sandia and Los Alamos—have endorsed this initiative and the proposed degree and have expressed a serious interest in supporting this endeavor.

Interim President Chaouki Abdallah has made the following statement in support of the program: "The combination of educational offerings and research have the potential to provide better solutions to global problems that range from terrorism to technology transfer, health crises, trade, global financial investments, among others. Its importance to UNM and its students cannot be understated." The program's goal is to deliver broad global and national security education to the professional workforce in the national labs, the national security industry, and the professions—from engineering to medicine. The non-traditional module offerings are designed to provide an informed, knowledge-based policy and cultural context to professionals regardless of their fields of endeavor to help them connect their specific expertise and experience to the wider national and global environment.

CATALOG

DESCRIPTION

Master of Science in Global and National Security
Global and National Security Policy Institute, Office of the Provost
September 1, 2017
Catalog Description

Introduction

The Master of Science degree in Global and National Security studies (MSGNS) is non-traditional, interdisciplinary, and consists primarily of online graduate modules (equivalent to two courses each) and in-person meetings. The MSGNS degree will be awarded through Graduate Studies. The degree is designed for individuals already in the workforce and aims at providing them with a broader context of security issues that help them with their work. At least four important factors underscore the uniqueness of this initiative: First, UNM's proximity to, and close collaboration with, two world renowned nuclear and engineering laboratories, Los Alamos and Sandia. Second, a comprehensive definition of global and national security, which underpins the mission of GNSPI and the MSGNS degree, encompassing technology, cybersecurity, nuclear policy, global health, terrorism, cultural and legal dynamics, leadership and decision making, and natural resources. Third, a belief that the United States is not an island onto itself and that what happens globally—economically, politically, militarily, and culturally—directly affects the security of the United States and the safety of its interests and citizens—diplomats and the military—overseas. Fourth, what happens globally affects New Mexico and its government, private, and educational institutions, as well as the citizens of the state.

The demand for national and global security graduates is on the rise given all the events occurring daily in the world. The GNSPI has competing institutions that offer degrees in the field but the GNSPI has adopted a more inclusive model of all issues and problems across many fields and disciplines to offer a comprehensive study and research program. The program needs to advertise and establish relationships with many employers so that we can recruit students to the program. The value of the UNM program lies in its comprehensiveness and proximity to the two major labs—Sandia and Los Alamos—which makes it possible for a student from the workforce to continue one's career while developing important knowledge and skills in an area. The importance of this program is highlighted by the myriad of issues that nation states have faced in recent decades. The rise of non-state actors—in politics, economics, cyber technology, nuclear proliferation, and hacking—has challenged the old order of nation states and has created new security challenges that are global in nature. Such challenges and ensuing threats will also impact the United States and the security of American citizens and institutions. The GNSPI educational and research program would cover several important international issues that transcend states and regions. They range from nuclear weapons and non-proliferation power issues to natural resources (food, water, and energy), humanitarian issues, innovation, and infrastructure resiliency. In addition to the global security environment, the roles that nation-states, international institutions, and global business corporations have played are

shifting. We must understand the impact of these shifts in roles and responsibilities to know where technology can contribute to a more stable world. The MSGNS degree aims at helping potential students to have a broader understanding of the strategic, policy/institutional, technological, and cultural contexts in which scientists, engineers, technologists, lawyers, businesspeople, and other public and private sector employees operate.

Degree Offered

Master of Science in Global and National Security (MSGNS). The degree will be awarded through Graduate Studies

Admissions Requirements

A Bachelor's degree in any field.

Degree Requirements

The MSGNS will require successful completion of 33 credit hours. Students must take:

1. Pathway Course

    - POLS 512: Introduction to Global and National Security

2. Two required modules totaling 12 credit hours (from the following three modules):

    - Globalization, Technology, Innovation, and National Security (MGMT 594)

    - Introduction to Directed Energy and Cybersecurity (ECE 595)

    - Human Decision Making and National Security (PSY 650)

3. Three elective modules totaling 18 credit hours (from any of the following modules):

    - Environmental Security (GEOG *499/ POLS 512)

    - Introduction to Resilience and Decision Making Under Uncertainty (CE 598)

    - Nuclear Policy and How Government Agencies Function (NE 515)

    - International Law, National Law, and National Security (LAW 541)

    - US Foreign Policy Making and Institutions, Terrorism, and National Security (POLS 512)

A module is a six-credit, eight-week course focusing on a major global and national security theme or region, including—addition to the above modules—food, water, and energy security, Latin America, Asia, the Middle East, and Africa.

The departments offering the modules are responsible for the academic integrity and

quality of the academic content of the modules. They also must ensure that the contact hours during the 8-week length of the module should be equivalent to the accepted principle that a three-credit course requires two and a half contact hours a week. A six-credit module, therefore, requires the equivalent of five contact hours a week.
The modules are based broadly on two courses in the catalog of the departments offering the module or on existing research relating to the theme of the module and the courses.

The MSGNS is a professional degree, which follows the non-thesis option. Students, however, are required to submit a significant research project at the end of every module they take in the program. The departments offering the modules are responsible for the academic content and integrity of the modules.

The modules will have to be approved by the department that offers them and by a University- wide, senior level Executive Committee appointed and chaired by the Director of the GNSPI in consultation with the Provost, the Dean of Graduate Studies, and the Deans of the schools and colleges involved in the program. The eight-member Executive Committee will represent all stakeholders at UNM: College of Arts & Sciences (two members); School of Engineering (two members); Anderson School of Management (one member); School of Law (one member); Health Sciences Center (one member); and the Director of the Undergraduate Global and National Security Studies Program.

The Director of the Global and National Security Policy Institute will administratively report to the Provost but will also work closely with the Dean of Graduate Studies, the MSGNS Executive Committee, the Registrar's Office, and the Deans of individual schools to guarantee the academic integrity of the program. A major selling point of this degree is that a potential student could complete the requirements for the degree in one calendar year.

Costs associated with this program are solely the Institute's responsibility, therefore compensation for faculty and/or course releases will be paid by the Institute. Departments will receive funding from the institute to backfill any instructional needs of the department for the faculty teaching these courses. It is important to note that the department will not have to incur any costs for allowing a faculty to teach one or more of these courses.

Below are module offerings in the first year after the MSGNS is approved. As more elective and required modules are developed, they will be added to the annual offerings over the next two years.

Semester	Course	Title	Type
Year 1			
Fall			
	POLS 512	Introduction to Global and National Security	Required
	PSY 650	Human Decision Making	Required
	ECE 595	Fundamentals of Cybersecurity and Directed Energy	Required
Spring			
	POLS 512	Introduction to Global and National Security	Required
	MGT 594	Globalization, Technology, Innovation and National Security	Required
	GEOG 499*/POLS512	Environmental Security	Elective
Summer			
	POLS 512	Introduction to Global and National Security	Required
	POLS 512	US Foreign Policy Institutions and National Security	Elective
Year 2*			
Fall			
	POLS 512	Introduction to Global and National Security	Required
	PSY 650	Human Decision Making	Required
	CE 598	Introduction to Resilience and Decision Making Under Uncertainty	Elective
	LAW 541	International Law, National Law, and National Security	Elective
	NE 515	Nuclear Policy and How the Legislative and Executive Branches Function	Elective
Spring			
	POLS 512	Introduction to Global and National Security	Required
	MGTS94	Globalization, Technology, Innovation and National Security	Required
	ECE 595	Fundamentals of Cybersecurity and Directed Energy	Required
	GEOG499*/POLSS12	Environmental Security	Elective
Summer			
	POLS 512	Introduction to Global and National Security	Required
	POLS 512	US Foreign Policy Institutions and National Security	Elective
Year 3*			
Fall			
	POLS 512	Introduction to Global and National Security	Required
	PSY 650	Human Decision Making	Required
	CE 598	Introduction to Resilience and Decision Making Under Uncertainty	Elective
	LAW 541	International Law, National Law, and National Security	Elective
	NE 515	Nuclear Policy and How the Legislative and Executive Branches Function	Elective
Spring			
	POLS 512	Introduction to Global and National Security	Required
	MGT 594›	Globalization, Technology, Innovation and National Security	Required
	ECE 595	Fundamentals of Cybersecurity and Directed Energy	Required
	GEOG499*/POLSS12	Environmental Security	Elective
Summer			
	POLS 512	Introduction to Global and National Security	Required
	POLS 512	US Foreign Policy Institutions and National Security	Elective

Year 2 and 3 module offerings will follow once the program is approved and more modules are developed.

MODULES

Master of Science in Global and National Security
Global and National Security Policy Institute, Office of the Provost
November 1, 2017
Modules

In addition to the required three credit hour introductory course (**POLS 512: Introduction to Global and National Security**), the modules listed below constitute the offerings of the MSGNs during the first three years of the program. Other modules may be added later. The list is not meant to be inclusive or comprehensive but is designed to illustrate the themes that would be covered under the degree's broad definition of global and national security. During this period, the modules will be listed under the "Special Topics" course numbers in the catalog of the departments offering the module.

1. **Globalization, Technology, Innovation, and National Security:** This module will focus on international competitiveness as a basis for economic and, therefore, national security. Competitiveness has elements of technology development and innovation, infrastructure in all its forms, financial capabilities to develop and execute such activities and many other interrelated factors. The module will cover international regimes of innovation and resultant economic activities; technology, R&D and other contributions to innovation in civilian and military products and services; international agreements and cooperation and their effect on competitive activities; and financial systems and their effect on economic and national security and on competitive activities; and e) other related areas.

2. **Environmental Security:** Only recently have US agencies begun to take seriously the importance of environmental factors, including climate change and resources, in shaping national security. This module would combine contributions from Earth and Planetary Sciences, Political Science, Economics, and Geography and Environmental Studies to assess the scope of challenges to human and economic security, as well as risks of conflict, associated with environmental stresses. Topics would include the extent or projected climate, physical, and ecological changes; economics of climate change impacts, adaptation, and mitigation; scope of population displacements; infrastructural requirements of climate adaptation; and empirical analysis of the impact of environment on civil and international conflict. The module also focuses on key concepts in natural resource management, highlighting historical and contemporary case studies of resource-based conflict, and
on understanding such paradigms as the human- environment relationship, scales of environmental governance, the special complexity of water as a fluid resource, resource dependence, and the "resource curse."

3. **Nuclear Policy and How the Legislative and Executive Branches Function:** Most graduates of UNM as well as most New Mexico employees have a scant knowledge of how

Washington works. Some courses on how the executive and the legislative branches function would be good for both undergraduates and graduates as well as employees of the high-tech community might be interested. This module should help explain nuclear policy for technical people who are employed in the labs and the national security community.

4. **International Law, National Law, and National Security:** This module would explore the domestic and international legal constraints on nations and non-state actors during times of war or crises. Topics would include: constitutional law (such as the authorities assigned to the branches of the federal government over foreign affairs), criminal law (such as the essential elements of criminal offenses, including terrorism), national security law (such as the authority of the Executive and the role of the judiciary in times of war), international law (such as the war crimes and genocide), international human rights (such as protections for refugees and minority groups), and domestic preparedness (such as the roles of federal and state agencies in the event of a natural or man-made disaster).

5. **Global Health and Human Security:** This module combines the diverse fields of public health and preventive medicine, environmental studies and international law in exploring the challenges of population health in globalized world settings. Topics include bioterrorism, pandemic preparedness, epidemiological surveillance of emerging infectious diseases, non-communicable and neglected tropical diseases, social determinants of health, structural violence and the critical roles of governments, business and non-profit organizations in providing transformative leadership.

6. **Fundamentals of Cybersecurity and Directed Energy:** This module covers the fundamental concepts associated with assuring the security of networked computing systems. Key security building blocks including authentication, authorization, encryption and public key infrastructure will be introduced. It also considers the differences between threats and vulnerabilities, and provides a categorization of cybersecurity attacks. Key industry and governmental security standards will be presented, and fundamental principles associated with securing a system will be articulated. Finally, the module will consider how emerging technologies impact the design and implementation of security system architectures and how directed energy research will impact future conflicts.

7. **Human Decision Making:** The module introduces the psychology of human decision making from two complimentary perspectives. The first is the idea that humans are not rational but are still predictable in the ways they deviate from rationality. The other approach explores decision making from an evolutionary perspective and introduces the idea that many apparent deviations from rationality may be adaptive in a biological sense. The module will cover major models of decision making that account for the interaction of emotion and reason and how neural signals can predict biases and discuss the well-defined phenomena in behavioral economics, social psychology, and perception. Examples will be interpreted through computerized models and neural systems that contribute to biased decisions. In addition, the module will cover ecological and evolutionary models of heuristics and biases,

including error management theory of "fast and frugal" heuristics, and will examine recent research on the evolution of collective decision making in human and animal groups.

8. US Foreign Policy Institutions, Terrorism and National Security:

As the program moves forward, additional modules would be developed depending on the outside demand, faculty availability, and continued collaboration with employers, including Sandia and Los Alamos labs. The following are examples of such modules:

1. **International Regimes:** This module would focus on international interactions that take place under the frameworks of rules, institutions, regulatory frameworks, and accepted practices that are referred to in the aggregate as international regimes. Regimes combine elements of international law, international organization, norms, and administrative and bureaucratic systems. Often multiple regimes have bearing on a given set of issues and interactions. This module would require faculty contributions from law, political science, management, economics, and possibly other departments.

2. **Weapons of Mass Destruction (WMD) Non-Proliferation and Policy and Science:** Interdisciplinary introduction to the nonproliferation. The US and international agencies responsible for development and implementation of nonproliferation policies will be discussed. Social and political dynamics underlying the development of WMD in selected countries. A review of current nonproliferation treaties will also be examined. Discussion of the technological approaches available for verification and implementation of these policies and treaties and of the concept of non-proliferation policy and its application. Current Challenges in Far East Asia and the Middle East will be reviewed.

3. **Nuclear Proliferation/Non-Proliferation—Regional Issues and Capabilities:** Issues arising from nuclear proliferation in certain sensitive regions of the world will be examined. Student projects will focus on nuclear capabilities and intent in South Asian countries as part of regional strategic analysis of the nuclear enterprise. Student research projects are planned to determine through open sources the nuclear capabilities and intent of the countries, such as: development of nuclear strategic and theater forces, development of materials capabilities and capacity for such weapons, development of nuclear industries and power generation, leadership intent, national prestige, and threat perception, political and public understanding of nuclear weapon and energy development issues, and intellectual and technical capabilities in nuclear research and development. Interdisciplinary efforts will be attempted to develop research topics from technical and political/policy viewpoints will be encouraged.

4. **Data Science:** This course provides an overview of the key concepts associated with data science. Students will learn how to analyze data to gain insights and support data- informed decision making. First, a background on data modeling and ingestion will be provided. This will include data "munging", that is, the cleaning, sampling, and manipulation of raw data to prepare it for analyses. The module will also discuss data structures and database systems that support data analytics over large data sets and statistical analyses, regression, classification and prediction as applied to big data. Finally, the module will consider effective means for

presenting analytics results, including discussion of data visualization, dashboards and visual analytics architectures.

5. **Human Rights and International Security:** There is growing evidence in the social sciences that protection of human and civil rights is not only normatively desirable, but is linked to reduced risk of both international and internal conflict. International relations scholars have confirmed that democracies are very unlikely to go to war with one another; less clear is how effectively democracies can encourage democratization. Scholars of internal conflict have found that human rights violations, especially indiscriminate ones, are a frequent trigger for civil war. This module will explore the value of human rights protections and promotion in enhancing international security, as well as empirical assessment of the effectiveness of international efforts to promote human rights.

6. **Homeland Security and Global Problems**: This module provides learners with a broad, up-to-date and interdisciplinary overview of health and human security in the 21st century. Course materials cover making connections to world issues of inequality, work and trade, gender and family, access and success in education, crime, war and states of terror, democracy and human rights, ethnicity and religion, ecology, sustainability and urbanization, poverty and population health, technology and energy.

7. **Modules on Regional Issues and Global and National Security, for example in the Middle East, Latin America, and Africa, will be developed as the program moves forward.**

Below please find a list of the affiliated faculty who have taught in the program or will teach in the 2018-2019 academic year:

1.   Dr. Raul Gouvea (Anderson)
2.   Dr. Sul Kassicieh (Anderson, passed away last fall)
3.   Dr. George (Sandy) Sanzero (Sandia, will replace sul Kassicieh)
4.   Dr. Edl Schamiloglu (Electrical Engineering)
5.   Dr. Chris Lamb (Sandia)
6.   Dr. Maria Lane (Geography and Environmental Studies)
7.   Dr. Bill Stanley (LAII and Political Science)
8.   Dr. James Cavanaugh (Psychology)
9.   Dr. Romina Angeleri (Psychology)
10.   Dr. Mahmoud Reda Taha (Civil Engineering)
11.   Dr. Tim Ross (civil Engineering)
12.   Dr. Rob Leland (National Renewable Energy Lab, formerly Senior Vice President, Sandia)
13.   Professor Joshua Kastenberg (Law)
14.   Professor Maryam Ahranjani (Law)
15.   Dr. Mark Peceny (Dean, Arts and Sciences and Political Science)

LEARNING OBJECTIVES

Master of Science in Global and National Security
Global and National Security Policy Institute, Office of the Provost
September 1, 2017
Learning Objectives of the MSGNS Degree

The UNM MSGNS trains students through education and research to become successful practitioners in the broad field of global and national security. Graduates of the program will be able to:

1. Explore and produce innovative solutions to global problems that range from terrorism to technology transfer, health crises, trade, global financial investments, nuclear proliferation and nonproliferation, environmental degradation, leadership decision making, and population movements and refugees
2. Strengthen their competitive edge as they seek employment and career advancement opportunities, nationally and globally
3. Work in national labs, government offices and agencies dealing with national security, broadly define, and in international organizations focusing on issues of war, peace, and diplomacy and on humanitarian issues
4. Study and research global trends in policy areas, understand their implications globally and nationally, and function well in global and national diverse environments.
5. Assess how technology and innovation impact national economic and security policy
6. Forecast future global technological challenges in light of recent developments and security threats.

Learning Outcomes

1. Research appropriate sources and communicate clearly through well-written papers, reports, and briefings

2. Analyze documents, scholarly reports, and draw logical conclusions and policy recommendations

3. Examine the link between the economic, social, environmental, political, technological factors and variables and global and national security in an interdisciplinary context

GRADUATE PROGRAM

PROJECTED COST

Master of Science in Global and National Security

Projected Graduate Program Cost Estimates and Resources

ESTIMATED REVENUES	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
	Existing	New	Existing	New	Existing	New	Existing	New	Existing	New	Existing	New
Projected University I&G or Tuition	50,000	201,200	251,200	75,600	326,800	79,200	406,000	62,000	468,000		468,000	
External Grants and Contracts												
Other		50,000	50,000		50,000							
TOTAL REVENUE		301,200		376,800		456,000		468,000		468,000		468,000
ESTIMATED EXPENSES												
Salaries and/or benefits (Faculty & Staff)	137,000	91,000	228,000	89,000	317,000	56,500	373,500		373,500		373,500	
Learning Resources				-		-		-		-		-
Equipment	1,000	2,000	3,000	1,000	4,000	1,000	5,000		5,000		5,000	
Facilities & modifications				-		-		-		-		-
Other	11,000	27,500	27,500	20,550	48,050	7,950	56,000		56,000		56,000	
TOTAL EXPENSES		269,500		369,050		434,500		434,500		434,500		434,500
DIFFERENCE (Rev.-Exp.)		31,700		7,750		21,500		33,500		33,500		33,500
ESTIMATED IMPACT OF NEW PROGRAM	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
FTE Enrollment		12		18		25		40		40		40
Projected Annual Credits Generated		252		378		510		780		780		780
Tuition Generated		151,200		226,800		306,000		468,000		468,000		468,000

Financial Analysis of the Graduate Program

The program will depend on many sources of revenue. These revenue sources come from tuition revenue, UNM subsidy, and external support. Details about each is as follows:

- **Tuition Revenue:** In order to align this program with University tuition rates comparable internally with our current professional programs, we will set tuition at $600 per student credit hour. Therefore, the total cost of the degree program will be $19,800 and
  $3,600 per module, or $1,800 per course. The cost of the program is relatively low compared to other institutions with similar programs. However, because UNM is a public institution funded by the state, keeping graduate programs affordable is necessary in order to provide access to the population the state serves.
  - *Internal Distribution of Tuition Collected:* Of the total tuition collected the Institute will collect 65% of the pooled tuition (graduate tuition) and 100% of the differential tuition. The remaining 35% of tuition will be allocated centrally for administrative overhead. This model is in alignment with the current tuition incentive model for managed online degree programs. Although, this program is not a fully online program defined by university standards for managed online programs, the majority of the program is offered online and has guiding principles to attract new student populations and serve regional workforce needs.
- **UNM Subsidy:** The University is committed to the launch of this program and therefore has committed to subsidize this program for the first three years or until the program generates enough resources to be self-sustaining. The current subsidy includes funding the director's position, staffing resources for the program, funding for course development and operating expenses.
- **External Subsidy:** As of this writing, GNSPI has received a commitment from Los Alamos National Laboratory of $50,000 per year for three years. This funding will be used for course and content development of each module. GNSPI plans to continue to reach out to other entities, such as Sandia National Laboratories, for support of the program's academic development, as well as collaborative opportunities for workforce training and development.

Expenses for the program consist of salary and benefits, which include the director of the program, faculty for both teaching and developing the courses, staff support, and fringe benefits. Operating expenses include supplies, equipment, travel for recruitment and research activities, and the university's overhead tax. Costs associated with this program are solely the Institute's responsibility, therefore compensation for faculty and/or course release will be paid by the Institute.

Los Alamos
NATIONAL LABORATORY
—— EST.1943 ——

National Security Education Center
Los Alamos National Laboratory
PO Box 1663, T001
Los Alamos, NM 87545
505-665-0983

Symbol: NSEC: 17-067
Date: September 5, 2017

Dr. Emile Nakhleh, Director
Global and National Security Policy Institute
MSC05 3400
1 University of New Mexico
Albuquerque, NM 87131-0001

Subject: Support for MS degree program in global and national security

Dear Emile,

We are pleased to offer our endorsement for the University of New Mexico's proposed Master of Science degree in global and national security (MSGNS) through the Global and National Security Policy Institute (GNSPI). There are many policy centers at US universities, many of which focus on targeted areas of interest to the faculty advisors. In comparison, the University of New Mexico's program is broad and comprehensive in nature and the MSGNS degree should prepare students for a broader understanding of the strategic, policy/institutional, technological, and cultural contexts to prepare for a variety of possible career paths. The program also aims at helping its graduates improve their competitive edge as they compete for jobs and career advancement. We are excited to see GNSPI develop this new degree program as will be of great benefit to potential students and the workforce needs within the local and regional community.

Very truly yours,

Alan R. Bishop
Principal Associate Director
Science Technology and Engineering
Los Alamos National Laboratory

David L. Clark
Program Director
National Security Education Center
Los Alamos National Laboratory

NNSA
National Nuclear Security Administration

Sandia National Laboratories

Operated for the United States Department of Energy
by National Technology and Engineering
Solutions of Sandia, LLC.

P.O. Box 5800
Albuquerque, NM 87185-1375

Phone: (505) 844-5269
Fax: (505) 284-9043
Email: rkwilso@sandia.gov

Rodney K. Wilson, Ph.D.
Director, Center for Global Security and Cooperation

August 29, 2017

Dr. Emile Nakhleh, Director, Global and National Security Policy Institute
Nicole14@unm.edu
Ms. Nicole Dopson, Senior Financial Officer, Office of the Provost
enakhleh@unm.edu

Dear Emile and Nicole:

Subject: *GNSPI Master's Degree Program*

As a member of the External Advisory Board to UNM's new Global and National Security Policy Institute (GNSPI), I have been pleased with the progress made in establishing the GNSPI as important, not only for UNM, but for the national security institutions across New Mexico and the region. Here, I would like to take the opportunity to continue my support, and Sandia's by endorsing the business plan and proposal for a Master's Degree Program.

Key to GNSPI's success will be not only the scholarship and research in both technical and nontechnical fields pursued by those directly involved with GNSPI, but also the Master's Degree Program that can contribute significantly to the development of New Mexico's workforce engaged in national security in sectors as diverse as the state's National Security Laboratories, its business community – particularly those associated with infrastructure and energy – and other government and nongovernmental entities. Particularly important is the contribution that a Master's Degree Program can make in attracting and retaining world-class talent by offering education opportunities, some of which will fill gaps in making employees at these institutions, like Sandia National Laboratories, more effective in contributing to the Laboratories' national security missions, gaps that cannot be filled by those institutions.

As the effort to build the GNSPI continues, Sandia is committed to continuing its support of UNM.

Sincerely,

Rodney K. Wilson

September 1, 2017

Roberta Cooper Ramo
505.848.1879
Fax: 505.848.9710
rramo@modrall.com

Dr. Emile A. Nakhleh
Director, Global and National Security Policy Institute
1 University of New Mexico
Scholes Hall, 240
Albuquerque, NM 87131

Ms. Nicole Dopson
Senior Financial Officer, Office of the Provost
1 University of New Mexico
Scholes Hall, 240
Albuquerque, NM 87131

Re: University of New Mexico proposed Master of Science Program.

Dear Dr. Nakhleh and Ms. Dopson:

As you know I was a Regent of UNM for 6 years and am also involved in the New Mexico community's efforts to increase opportunities for post graduate education in areas that are important to our economy.

This letter is to endorse and support strongly the Proposed Master of Science Degree in Global and National Security at the University of New Mexico. At this time in our Country's history having a robust work force, superbly trained to deal with global threats to our institutions and our businesses could not be more important. The program that is outlined in this Master's degree will be attractive to employers in the private sector and in government.

Much of our state's economy is dependent upon the national Laboratories at Sandia and Los Alamos and the many endeavors that flow from them. All of them are concerned that we have in the state well trained specialists to deal with cybersecurity. This well trained work force is equally important to those private entities, including major hospitals, financial institutions and all groups

that have to secure the information of their employees, patients and customers.

This is an area in which I believe with the leadership of the Global and National Security Policy Institute and the existence of this course of study leading to the Master of Science Degree we can be a national model and resource that will have resonance beyond the borders of New Mexico.

I hope that you are able to announce that the University has formally accepted your proposal, course of study and the Master's Degree itself. It cannot happen fast enough from my point of view.

Respectfully,

Roberta Cooper Ramo

K:\dox\client\11996\113\W3007443.DOCX

DBE CONSULTING LLC

11039 Bridgepointe NE
Albuquerque, NM 87111

To:

Dr. Emile Nakhleh, Director, Global and National Security Policy Institute
Ms. Nicole Dopson, Director, Financial Operations, University of New Mexico

From:
Jim Tegnelia,
Chair Army Science Board
Member, External Advisory Board Global and National Security Institute,
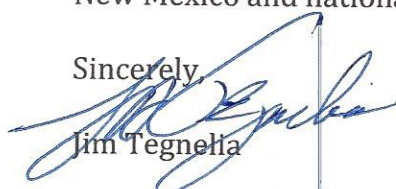The University of New Mexico
September 1, 2017

Dear Emile and Nicole,

It is a pleasure to endorse the Master of Science degree in Global and National Security at the University of New Mexico's Global and National Security Policy Institute. As a research professor at UNM and a retired officer of Sandia National Laboratories and Lockheed Martin Corporation, I am certain that this degree program will not only be of the highest quality when measured against other similar national programs but it will also be of value to the industrial, national laboratories, and scientific community in the State of New Mexico.

Industry and National Laboratory professionals today are required to travel out of the state of New Mexico to obtain quality graduate-level courses and degrees in Security Policy, disrupting careers and family life. Often these students are not eligible for tuition and living assistance as employers are not willing to pay for leaves of absence and out of state education. The UNM degree program provides New Mexico career scientists and engineers, and national security specialists generally, with a new option for furthering their education and their employers with an opportunity to encourage their employees to continue their education. As the students remain employed, their employers will often provide support to assist them in this pursuit. This option would provide this opportunity without disrupting careers and interrupting employment at institutions in the state of New Mexico. Both employers and employees should appreciate, and therefore take advantage of, this opportunity particularly as the quality of the education and the earned degree match those of East and West Coast universities.

This program certainly will help new graduates compete for positions in the national security field and help those in the field to advance their careers, both in New Mexico and nationally.

Sincerely,

Jim Tegnelia

Phone: 505-856-2618 • Fax: 505-856-5860 • Email: jategnelia@aol.com

13512 Desert Zinnia Ct NE
Albuquerque, NM 87111
505-377-4054

Steven E. Downie

September 4, 2017

TO: Dr. Emile Nakhleh, Director, Global and National Security Policy Institute

SUBJECT: Master of Science degree in Global and National Security (MSGNS)

Dear Emile,

As a recently retired Site Director for Raytheon company in Albuquerque, I am pleased to have the opportunity to endorse the University of New Mexico's proposed Master of Science degree in Global and National Security (MSGNS).

I believe the timing for such a program being offered is ideal, especially in light of current events globally, and our need to understand the cultural, social, economic and political ramifications of our business decisions as we continue to expand our defense base internationally.

In reviewing the proposed structure of the program, it is clear that many highly skilled professionals under your direction have given significant thought in developing relevant subject matter that, collectively, creates a comprehensive curriculum, which will add significant value to the decision-making process in US defense companies, as well as all other sectors doing business internationally.

In comparing the proposed program with that of other universities, the MSGNS will be a more comprehensive course of study, as it is not focused in one particular area. The

MSGNS endeavors to provide a broader view of the issues (economic, cultural, global health, terrorism, cybersecurity, technology, nuclear policy, etc) and how our business decisions can directly impact both US and global security.

Through the MSGNS, I truly believe the University of New Mexico will produce knowledgeable, well informed students that will become valued members of corporate teams developing business strategies that will be more effective in our global economy, while ensuring continued security both nationally and globally.

Kindest Regards,

Steven E. Downie

August 30, 2017

To: Dr. Emile Nakhleh, Director, Global and National Security Policy Institute
        Ms. Nicole Dopson, Senior financial Officer, Office of the Provost

Dear Emile and Nicole,

I am very pleased to write this letter in support of your efforts to establish a Master of Science degree in global and national security (MSGNS) through the Global National Security Policy Institute (GNSPI). As a member of the GNSPI External Board of Advisors, I have seen firsthand the care and thought that you and many other collaborators at UNM have invested in creating the business plan for the GNSPI and the proposed Master of Science degree in global and national security.

We live in a world where rapidly developing technology and the unrelenting evolution of national and cyber security risks present some of the biggest challenges we face to our way of life and economic survival. Yours and the University's efforts to establish a multidisciplinary approach to these challenges through the MSGNS degree will provide opportunities for UNM's students to obtain the knowledge and skill sets necessary to thrive and compete for high value jobs and careers in the field of global security, national security and policy development. UNM can provide great value to our country and our society by providing this unique opportunity for UNM students to achieve a Master of Science degree in global and national security.

As a lifelong resident of New Mexico, a local business owner, and a citizen that is concerned about the many challenges facing our world today, I am especially proud of the University of New Mexico for looking to the future and creating a program and degree that will so greatly contribute to making our world a safer place and for training a new generation of leaders with unique skills and insights that will positively impact our world for generations to come.

Very Truly Yours,

Dale R. Dekker, AIA, AICP
Founding Principal-Dekker/Perich/Sabatini, Ltd.

31 August 2017

Dr. Emile Nakhleh
Director, Global and National Security Policy Institute
University of New Mexico
Albuquerque, New Mexico

Dear Dr. Nakhleh

Congratulations on the proposed enhancement of UNM's national security studies offerings, built on the already robust National Security Studies Program. Having observed and participated in the NSSP now for six years, I enthusiastically endorse the proposed Master of Science degree in global and national security. The University of New Mexico has the basis for a top-quality graduate-level academic and research course and combinations of courses of direct value to many of our traditional and non-traditional students. We have become known and of interest to the national and Air Force research laboratories for their personnel, as well as an extended on-line audience of interest.

Viewed as competition for other university-based national security programs, the proposed Master of Science degree will be an improvement – broader available coverage, high quality, modest cost. In addition to the wide reach of our on-line offerings, our immediate area is rich in potential students with a professional interest in expanding their national security understanding and credentials. And our graduates looking for professional careers in the national security arena will find their appeal to Federal employers substantially enhanced.

The proposed addition of a Master of Science in global and national security will be welcome and important to the university's portfolio of national security offerings. In my view, we should proceed to provide this degree with all due haste.

Sincerely,

Bradley C. Hosmer
Lt. Gen. USAF ret.
Regent, UNM

August 25, 2017

To: Dr. Emile Nakhleh, Director, Global and National Security Policy Institute
        Ms. Nicole Dopson, Senior Financial Officer, Office of the Provost

Dear Emile and Nicole,

As Provost, I am delighted to endorse the University of New Mexico's proposed Master of Science degree in global and national security (MSGNS) through the Global and National Security Policy Institute (GNSPI). Housed in the Provost's office, the GNSPI serves the entire University. The MSGNS degree plans to offer a quality academic and research program of courses and combinations of courses or modules that are of tangible use to the workforce, mostly online, and at a reasonable cost.

In comparison with other regional and national universities that offer programs in national security—the University of New Mexico's program is more comprehensive in nature and less costly while maintaining high quality. The MSGNS degree aims at helping potential students to have a broader understanding of the strategic, policy/institutional, technological, and cultural contexts in which scientists, engineers, technologists, lawyers, businesspeople, and other public and private sector employees. The program also aims at helping its graduates improve their competitive edge as they compete for jobs and career advancement.

I am excited about the opportunity this degree program offers to potential students and the workforce needs within the local and regional community.

Sincerely,

Craig White, Ph.D.
Provost and Executive Vice President for Academic Affairs

Dr. Emile Nakhleh,
Director, Global and National Security Policy Institute

Ms. Nicole Dopson,
Director of Financial Operations, Office of the Provost

Dear Emile and Nicole,

As a scholar of international politics and American foreign policy, I was called upon very soon after I arrived at UNM in 1992 to develop course offerings and curriculum in the area of national security studies and to help build ties of collaboration between UNM and Sandia National Laboratories. I have been at least peripherally involved in most efforts to accomplish these objectives over the past 25 years. Most of those efforts have failed to develop the strong roots in this institution necessary to sustain them over the long term.

I am optimistic that this effort will succeed because it is more comprehensive and inclusive than many previous efforts. It brings together engineers focused on technical aspects of security policy and social scientists and humanists who can provide insights into the global security consequences of climate change, racial, ethnic, and religious divisions, global inequities, and other broad causal forces shaping patterns of conflict and cooperation around the globe.

It is also structured in such a way to be accessible to professionals employed in a wide variety of fields who are looking for ways to gain deeper expertise in particular areas of security policy and a broad perspective on global security. I am hopeful that this program will find a way to bring together working professionals and more traditional students who hope to pursue careers in security policy broadly conceived.

I am willing to put my personal time and energy into ensuring the success of this initiative. I look forward to working with you Emile to develop and deliver one of the modules that will be offered in the degree program. I have not had a chance to teach graduate courses since I became Dean six years ago and look forward to the opportunity to teach in this program.

Sincerely,

Mark Peceny
Dean

MSC05 3400
1 University of New Mexico
Albuquerque, NM 87131-0001

To: Dr. Emile Nakhleh, Director, Global and National Security Policy Institute

Ms. Nicole Dopson, Senior Financial Officer, Office of the Provost

Dear Emile and Nicole,

As Senior Vice Provost, I am delighted to endorse the University of New Mexico's proposed Master of Science degree in global and national security (MSGNS) through the Global and National Security Policy Institute (GNSPI). Housed in the Provost's office, the GNSPI serves the entire University. The MSGNS degree plans to offer a quality academic and research program of courses and combinations of courses or modules that are: grounded in serious scholarly thinking about the cultural, social, economic, and political underpinnings of human and national security; of tangible use to the workforce; mostly online; and provided at a reasonable cost.

In comparison with other regional and national universities that offer programs in national security, the University of New Mexico's program is more comprehensive in nature and less costly, while maintaining high quality. The MSGNS degree aims at helping potential students to have a broader understanding of the strategic, policy/institutional, technological, and cultural contexts in which human security and national security thrive—contexts which scientists, engineers, technologists, lawyers, businesspeople, and other public and private sector employees must understand if we are to broaden human security in the contemporary world. The program also strives to help its graduates improve their competitive edge as they compete for jobs and career advancement.

I am excited about the opportunity this degree program offers to potential students and the way it addresses sophisticated understandings of human and national security, as well as urgent workforce needs within the local and regional community.

Signature_____Date__08/23/2017

Dr. Richard L. Wood
Senior Vice Provost (interim)
University of New Mexico

August 24, 2017

To: Dr. Emile Nakhleh, Director, Global and National Security Policy Institute
        Ms. Nicole Dopson, Senior Financial Officer, Office of the Provost

Dear Emile and Nicole,

As the Dean for the School of Engineering, I am delighted to endorse the University of New Mexico's proposed Master of Science degree in global and national security (MSGNS) through the Global and National Security Policy Institute (GNSPI). Housed in the Provost's office, the GNSPI serves the entire University. The MSGNS degree plans to offer a quality academic and research program of courses and combinations of courses or modules that are of tangible use to the workforce, mostly online, and at a reasonable cost.

In comparison with other regional and national universities that offer programs in national security—the University of New Mexico's program is more comprehensive in nature and less costly while maintaining high quality. The MSGNS degree aims at helping potential students to have a broader understanding of the strategic, policy/institutional, technological, and cultural contexts in which scientists, engineers, technologists, lawyers, businesspeople, and other public and private sector employees. The program also aims at helping its graduates improve their competitive edge as they compete for jobs and career advancement.

I am excited about the opportunity this degree program offers to potential students and the workforce needs within the local and regional community.

Sincerely,

Christos Christodoulou
Jim and Ellen King Dean of
Engineering and Computing
Ph: (505) 277-5522
Engineering.unm.edu

UNM
ENGINEERING

Applied Electromagnetics Group
MSC01 1100
1 University of New Mexico
Albuquerque, NM 87131-0001 USA
http://ece-research.unm.edu/schamiloglu/
(505) 277-6095, edls@unm.edu

August 24, 2017

To: Dr. Emile Nakhleh, Director, Global and National Security Policy Institute
        Ms. Nicole Dopson, Senior Financial Officer, Office of the Provost

Dear Emile and Nicole,

As Distinguished Professor of Electrical and Computer Engineering and Associate Dean of Research for the School of Engineering, I am pleased to endorse the University of New Mexico's proposed Master of Science degree in global and national security (MSGNS) through the Global and National Security Policy Institute (GNSPI). The GNSPI serves the entire University. I, in fact, am teaching a course under the auspices of the GNSPI for the second time in Fall 2017, so I am aware of the program and its importance to the University and its value to its students. The MSGNS degree plans to offer a quality academic and research program of courses and combinations of courses or modules that are of tangible use to the workforce, mostly online, and at a reasonable cost.

The University of New Mexico's program is more comprehensive in nature and less costly in comparison to other regional and national universities, while maintaining high quality. The MSGNS degree aims at helping potential students to gain a broader understanding of the strategic, policy/institutional, technological, and cultural contexts in which scientists, engineers, technologists, lawyers, businesspeople, and other public and private sector employees engage. The program also aims at helping its graduates improve their competitive edge as they vie for challenging jobs and career advancement.

I am excited about the opportunity this degree program offers to potential students and the workforce needs within the local and regional community. I am also excited about reaching a national audience for courses offered by the GNSPI through the on-line delivery. I expect enrollment in these courses to grow nationally each year.

Congratulations on your efforts and I look forward to the launching of the MSGNS degree in the near future.

Sincerely,

Edl Schamiloglu
Distinguished Professor
Associate Dean for Research

ANTHONY P. MANCUSO

MSEE Student, UNM ECE, Applied Electromagnetics
amancuso@unm.edu
505-322-7433

RE: University of New Mexico Provost, Dr. Craig White

Exceptional Experience in UNM ECE course, Introduction to Directed Energy
August 27, 2017

Dear Dr. White,

It was my pleasure to participate in a UNM ECE course titled Introduction to Directed Energy (DE). The course was designed to provide an understanding of the policy and science involved in DE systems. I have a particular interest in the fundamental physics and engineering associated with propagation of DE lasers and microwaves. This course served as a strong complement to my electrical engineering studies. It also provided objective and thoughtful discussions on the societal challenges associated with use and application of directed energy weapons.

The class reviewed texts and articles and responded to discussion questions. Each student had a different interest in the subject, including history of Russian/U.S. efforts in development and policy, challenges in achieving functional performance objectives, and application of the technologies involved to military and public safety operations.

It was exciting for me to research DE theory and the challenges involved for scientists and policy-makers. I did not think that I would invest much energy in the policy aspects of the class, but I found myself researching at length many questions that arose while attempting to answer a simple question posed to the class.

I was fortunate to have this opportunity to relate my technical interests with the policy issues and questions that leaders and the general public must grapple with. Development of applications in science and technology in a manner that serves the best interest of the public requires significant and effectively managed resources. I believe that this course provides a great opportunity for policy leaders to learn about directed energy systems, challenges, and impacts, not only by attending the course, but also through review of research and studies conducted by students in both technical and non-technical degree programs.

Sincerely,

Anthony P Mancuso

MSC05 3400
1 University of New Mexico
Albuquerque, NM 87131-0001

To: Dr. Emile Nakhleh, Director, Global and National Security Policy Institute

Ms. Nicole Dopson, Senior Financial Officer, Office of the Provost

Dear Emile and Nicole,

My name is Mark Orgeron and I am currently a PhD student within the College of Education and specifically in the Sports Administration. I would like to give my endorsement to the University of New Mexico's proposed Master of Science degree in global and national security (MSGNS) through the Global and National Security Policy Institute (GNSPI). I personally feel this interdisciplinary program serves the entire University and the wider New Mexico Community as well as create unique opportunities for students. The MSGNS degree gives students an amazing opportunity for cross collaboration with students and faculty from other disciplines to truly create a well-rounded scholar while looking at pragmatic approaches to combat current and future security concerns.

I have completed one module and am currently enrolled in a second and I have already seen the benefits of taking the Cyber Security and Directed Energy Weapons module. These course have made my research stronger and have given me new perspective of current issues in regards to risk management and national security. I am looking forward to taking more modules to expand my understanding of security and then being able to bring those concepts back to my research in order to create stronger arguments.

I am excited about the opportunity to participate in this degree program as the potential for my future employment will grow exponentially and will make me a stronger candidate in the workforce.

_Signature_____Date___8-25-17

Appendix I.

Global and National Security Policy Institute Business Plan

Business Plan

UNM Global and National Security Policy Institute

Executive Summary

The University of New Mexico's global and national security initiative, encompassing the Global and National Security Policy Institute (GNSPI) and a Master of Science degree in global and national security (MSGNS), is unique for UNM and for the Albuquerque and New Mexico communities. Housed in the Provost's Office, the GNSPI serves the entire University. The MSGNS, designed with particular features targeting individuals already in the workforce, aims at providing prospective students—from government, government contractors, and private corporations—with a broader context of security issues that affect their work. At least four important factors underscore the uniqueness of this initiative: First, UNM's proximity to, and close collaboration with, two world renowned nuclear and engineering laboratories, Los Alamos and Sandia. Second, a comprehensive definition of global and national security, which underpins the mission of GNSPI and the MSGNS degree, encompassing technology, cybersecurity, nuclear policy, global health, terrorism, cultural and legal dynamics, leadership and decision making, and natural resources. Third, a belief that the United States is not an island onto itself and that what happens globally—economically, politically, militarily, and culturally—directly affects the security of the United States and the safety of its interests and citizens—diplomats and the military—overseas. Fourth, what happens globally affects New Mexico and its government, private, and educational institutions, as well as the citizens of the state.

According to its Mission Statement, The GNSPI aspires "to be one of the top national security policy institutes in the country and globally." The Institute will draw heavily on the support of the world class organizations in New Mexico (national laboratories, major defense industry companies, energy, power, health, architectural firms and corporations, etc.) "where nuclear, biological, scientific, information, and engineering discoveries can impact our ability to protect critical resources from attack, manipulation, and destruction."

The MSGNS degree plans to offer a quality academic and research program of courses and combinations of courses and modules that are of tangible use to the workforce, mostly online, and at a reasonable cost. In comparison with other regional and national universities that offer programs in national security—for example, the University of Arizona, Arizona State University, the University of Denver, the University of Texas at Austin, Texas A & M, the University of San Diego, Georgetown University, and George Washington University—the University of New Mexico's program is more comprehensive in nature. While maintaining high quality, it also happens to be less costly. Whereas other universities focus on a single theme, such as terrorism, diplomacy, nuclear proliferation/nonproliferation and nuclear policy, cyber, trade, infrastructure resiliency, etc., the UNM program is all encompassing in its approach to global

and national security issues. It rests on the belief that these issues are interconnected and can no longer be viewed from a compartmentalized perspective. When a lab engineer, for example, visits a country to look at its verification policies and practices in complying with domestic and international treaties, standards, and regulations, a comprehensive knowledge of that country's culture, decision making, leadership, and geopolitical security threat perceptions will help provide the engineer with a more nuanced understanding of that country's overall approach to domestic and international treaties, standards, and regulations. The MSGNS degree at UNM aims at providing such a broad context to the workforce.

It is obvious that the demand for graduates with expertise in national and global security is on the rise, given all the developments occurring daily in the world. The competing institutions in this field notwithstanding, the GNSPI's comprehensive study and research program underpins its more inclusive model of all issues and problems across many fields and disciplines. The value of the UNM program lies in its comprehensiveness and proximity to the two major labs—Sandia and Los Alamos—which makes it possible for a student from the workforce to continue one's career while developing important knowledge and skills in an area. The program needs to advertise and establish relationships with many employers so that we can recruit students to the program.

The revenues for the program come from different sources: tuition revenue, UNM subsidy and support from the national and global security companies both in NM and ultimately nationally since these are the employers that we serve. Revenues are estimated at approximately $300K, $375K and $450K in the first three years. Expenses in these years include the director's salary, faculty stipends, course development, conference and symposium expense, travel, etc. The shortfalls in the first three years indicate that we need to implement "Friend" and "Partner" fund-raising activities to cover shortfalls and establish a sustainable economic plan.

The proposed Master of Science degree in Global and National Security (MSGNS) has received an impressive number of letters endorsing the program—six letters from the national security business community in New Mexico, including Los Alamos and Sandia national labs; a letter from a UNM Regent; two letters from the Provost and the Senior Vice Provost; two letters from the Deans of Engineering and Arts & Sciences; a letter from a Distinguished Professor who has taught two modules in the program; and two letters from two students who have taken the modules.

Briefly the letters agree on the following: Viewed as competition for other university-based national security programs, the proposed Master of Science degree will be an important improvement—broader available coverage, high quality, and modest coast. Under the leadership of the Global and National Security Policy Institute and the Master of Science degree in Global and National Security, UNM can be a national model and resource that will have resonance beyond the borders of New Mexico. The program brings together engineers focused

on technical aspects of security policy and social scientists and humanists who can provide insights into the global security consequences of climate change, racial, ethnic, and religious divisions, global inequities, societal legal issues, and other broad causal forces shaping patterns of conflict and cooperation around the globe.

Introduction

The University of New Mexico (UNM) Board of Regents (BOR) has approved the formation of the Global and National Security Policy Institute (GNSPI) to study, analyze and research broad aspects of security in a rapidly changing world with interconnected economies, technologies, cyber security, health, terrorism, and natural resources. UNM has many programs in different colleges and departments that can contribute, collaboratively and on an interdisciplinary basis, to such a broadly-defined global and national security initiative. The GNSPI and the envisioned Master's degree in global and national security (MSGNS) offer a unique program in the country because of UNM's close collaboration with the two world-class national labs, Los Alamos and Sandia, and the national security industry in New Mexico. Such collaboration focuses on research projects, teaching, training the work force in the labs and industry, joint hiring, annual lectures and symposia led by nationally prominent scholars and practitioners in global and national security, and the publication of articles and books. This should result in a competitive position that allows UNM to train future leaders in the field as well as develop research programs that can enhance this country's knowledge in these areas.

The importance of this program is highlighted in the myriad of issues that nation states have faced in recent decades. The rise of non-state actors—in politics, economics, cyber technology, nuclear proliferation, and hacking—has challenged the old order of nation states and has created new security challenges that are global in nature. Such challenges and ensuing threats will also impact the United States and the security of American citizens and institutions. The traditional ideologies of liberal democracies, which have underpinned the international order since WWII, are now under assault from hyper nationalistic states and destabilizing non-state actors. Newer and more aggressive ideologies, within states and internationally, including terrorism, are threatening to destabilize the existing order through technology—especially hacking—economic espionage, terrorism, and assault on democratic institutions. The GNSPI through its multi-faceted research, teaching, and training program, will modify the way we examine issues such as terrorism, nations at risk, global health, ethnic, religious and sectarian disputes, population movements and immigration and migration, transfer of technology and capital, nuclear proliferation/nonproliferation and policy, and climate change and environmental security. The GNSPI educational and research program would cover several important international issues that transcend states and regions, ranging from nuclear weapons and non-proliferation to natural resources (food, water, and energy), humanitarian issues, innovation, and infrastructure resiliency.

In addition to the global security environment, the roles that nation-states, international institutions, and global business corporations have played are shifting. We must understand the impact of these shifts and changing responsibilities to know where technology can contribute to a more stable world.

The intent of this Business Plan is to describe the formation of a UNM-wide sustainable interdisciplinary Institute to address the above issues, which would enhance UNM's position in the national security sphere and would strengthen the University's institutional, multi-year systemic links to the national laboratories and the national security at large. Through education, research, fellowships, and interactions with the national security industry in Albuquerque and across the State of New Mexico, the GNSPI and the MSGNS will enhance our students' opportunities in finding high-paying jobs and fulfilling careers. The Master's degree will focus on the following specific areas: cyber security and hacking; nuclear policy, proliferation and non-proliferation; technology; global health; terrorism; and national security policy and intelligence. The envisioned graduate program plans to build on existing undergraduate and graduate certificates and concentrations in global and national security.

Mission Statement: GNSPI and MSGNS

Reporting to the Provost and Executive Vice President for Academic Affairs, the Global and National Security Policy Institute (GNSPI) brings together global and national security-related courses, research, and programs at the University of New Mexico in a coherent whole under one umbrella to serve the entire institution—students and faculty—across its several campuses. Global and national security rests on a broad definition ranging from nuclear issues to natural resources, humanitarian and health challenges, as well as governance, legal, policy, technology, cybersecurity and terrorism threats, combating global diseases, and intelligence collection and analysis. Collaboration among departments, schools, and colleges, and with the Sandia and Los Alamos national labs will allow UNM faculty, students, laboratory scientists, and private sector technology and science experts to team-teach graduate courses and modules in specific fields and cooperate on cutting-edge research and innovation projects. The diversity of the UNM student body and faculty brings to the global and national security mix scientific expertise and analytics and cultural and language dimensions and understanding. This expertise will help our future leaders interact more effectively with their counterparts from other cultures and societies. The GNSPI will encourage experts from UNM, the national labs, and the private sector to participate as students and teachers in this uniquely designed learning experience, which would expand their horizons and widen the contexts in which they operate. Additionally, collaboration across these fields will encourage students and researchers to analyze rising threats and challenges to global and national security, and to support national workforce needs in many of the areas listed above. The program also aims at helping its graduates improve their competitive edge as they compete for jobs and career advancement. UNM is particularly situated to undertake this innovative effort.

The graduate degree in global and national security (MSGNS) is grounded in a broad definition of global and national security and aims at providing potential students from the workforce a stronger understanding of the broader strategic, policy/institutional, technological, and cultural contexts in which they work. These students include scientists, engineers, lawyers, businesspeople, administrators of voluntary associations and non-governmental organizations, and public and private sector employees. Although the program primarily targets the workforce, it is also open to UNM students. The goal of the MSGNS is to deliver broad global and national security education to the professional workforce in the national labs, especially Sandia and Los Alamos, the national security industry, and the professions, from engineering to medicine. The rich research and educational programs at UNM together with a full-time director and a core of highly trained cadre of professors and scientists will constitute the intellectual core of the MS degree in Global and National Security. Although many of the prospective students already possess deep science, engineering, business, and legal expertise, this program adds an important element to their knowledge and skills.

Vision Statement

The vision for the GNSPI is to be one of the top national security policy institutes in the country and globally. Analysis, research, conference and symposia high quality lectures together with national and global connections will help the public and private sectors determine the current and future scientific, technological, cultural, economic and managerial opportunities and challenges in today's complex security environment.

The Institute centers around the world class organizations in New Mexico (national laboratories, major defense industry companies) where nuclear, biological, scientific and engineering discoveries can impact our ability to protect critical resources from attack, manipulation, and destruction. By coordinating strategic national security-related forums, symposia, and critical debates of thought leaders (policymakers, government officials, civil society organizations, strategists, and other experts), from across the nation and globally, we should be able to examine the full spectrum of issues that impact our security and safety, globally and nationally.

The institute will utilize and benefit from the expertise wand strength of the national laboratories, the defense industry, the superb scientific, health, cultural and managerial faculty resources in developing a sustainable model grounded in theory but also sufficiently nimble to apply this knowledge to current and anticipated threats.

Imagined Stories of Participants

Faculty. A faculty member teaching in the program would become more familiar with the global aspects of her/his topic and would be afforded opportunities to apply for research grants, which otherwise would not have been available. Through teaching and research, such a faculty

member would become a force multiplier in deepening the students' expertise and interest in global and national security issues and their search for career enhancement.

Students. Although the program targets potential students from the workforce, UNM students could also enroll in the program. Workforce students would benefit from the program in at two ways: career enhancement and deepening expertise about other countries and cultures as well as gathering threats and challenges to national security, including hacking and other sources of threat. UNM students with a graduate degree in global and national security would be able to seek career opportunities in US Government departments—intelligence, diplomacy, the military, and the national nuclear labs—and in international nongovernmental organizations and private voluntary associations.

Success Metrics (Five Year Plan)

The GNSPI leadership will assess the Institute's success at the end of the first five years. The success factors to be measured and evaluated will include the following areas:

1. The courses offered, the student enrollment from the workforce (locally, nationally and internationally), job promotions of graduates and career advancement based on their academic work under the MSGNS
2. On-going connections with State, national, and global renowned experts in their respective fields through symposia, conferences, and special lectures will enhance the overall success of the proposed program. These special events will be integrated in the courses or modules offered in a particular semester or academic year. As world events unfold and the global and national security landscape changes over time, continuing education on current issues will be crucial in maintaining the maintaining the relevance of the MSGNS.al
3. The deepening collaboration (funding, in-kind contributions, team-teaching, joint hiring, etc.) with Los Alamos and Sandia national labs, the national security industry in New Mexico, and other major corporations around the State that are directly or indirectly impacted by national security academic activities.
4. **Growing** regional, national, and global reputation of the GNSPI and its graduate degree and the impact of such reputation on the recognition of UNM as a "national security" university.

Team

Dr. Emile Nakhleh: Director, Global and National Security Institute

Dr. Nakhleh is a retired Senior Intelligence Service Officer and a member of the Council on Foreign Relations. Since retiring from the US Government in 2006, he has consulted on national security issues, particularly Islamic radicalization, terrorism, and the Arab states of the Middle East. He has published frequently in the Financial Times and the LobeLog blog. At CIA, he was a

senior analyst and director of the Political Islam Strategic Analysis Program and of Regional Analysis in the Middle East. He was awarded several senior commendations and distinguished medals for his service, including the Distinguished Career Intelligence Medal and the Director's Medal. Prior to his government service, Dr. Nakhleh was a Professor of Political Science and International Studies and a Department Chair at Mount St. Mary's University in Maryland. His research and publications have focused on political Islam and Muslim world engagement, Islamic radicalization and terrorism in the Middle East and the rest of the Muslim world; governance in the greater Middle East; and US policy toward the Middle East and the Muslim world. He holds a Ph.D. from the American University, Washington, D.C., in International Relations, an M.A. from Georgetown University in Political Science, and a B.A. from Saint John's University, Minnesota, in Political Science.

Nicole Dopson: Director, Financial Operations for Academic Affairs

Nicole Dopson received both her Bachelor's in Business Administration and Master's in Accounting from the University of New Mexico. She has worked in the Office of the Provost and Academic Affairs since 2011. Her role as Director of Financial Operations entails providing critical financial, budget, accounting, and business process improvement support and analysis for the schools/colleges/divisions within Academic Affairs. She oversees the Academic Affairs Fiscal Shared Service Center and all the fiscal activities for the schools/colleges/divisions that report under the Provost. She works closely with the Provost, Deans, Chairs, and Vice Presidents in strategic financial planning and analysis and serves as the voice for Academic Affairs on fiscal/budgetary matters with divisions outside of Academic Affairs. Prior to her work within the Provost Office she has worked in multiple departments across the University campus and has experience working in the corporate accounting sector.

Dr. Frank Gilfeather: Director, Global and National Security Undergraduate Programs

Dr. Gilfeather is Director of the Global and National Security Undergraduate Programs, including the National Security Studies Program and the Intelligence Community Center of Academic Excellence (IC-CAE) at UNM. He also directs the Office of Strategic Initiatives in the Office of Student Affairs and is Professor Emeritus in the Department of Mathematics and Statistics at UNM. Dr. Gilfeather has served in various administrative positions at UNM.

Jaqueline Valencia: Office Assistant

Jaqueline Valencia is a freshman student at the University of New Mexico and currently works in the Academic Affairs Fiscal Shared Service Center as an accounting intern and office assistant for the GNSPI program. Her academic interests include medical sciences and Spanish. She graduated from the South Valley Academy high school in May 2017.

Advisory Boards

The GNSPI Director relies on the advice of two boards—an external board comprising several distinguished members from the community, including the two labs, and an internal board consisting of senior UNM faculty members and administrators. The UNM board advises the director on the academic curriculum of the MS degree and on the academic structure of the program.

External Advisory Board

Alan Bishop: Principal Associate Director for Science, Technology, and Engineering (PADSTE), Los Alamos National Laboratory
Patricia K. Collawn: Chairman, President and Chief Executive Officer, PNM
Dale Dekker: Founding Principal/Architect, Dekker/Perich/Sabatini, Ltd.
Steve Downie: Former Director, DOE Strategy and Capture, Missile Systems at Raytheon
Fred Federici: Attorney, US Attorney's Office, District of New Mexico
Roberta Ramo: Shareholder/Director, Modrall Sperling Lawyers; President of the American Law Institute
Jim Tegnelia: Owner DBE Consulting; Member of Department of Defense's Defense Science Board; Member of the Department of State International Security Advisory Board
Rodney Wilson: Director, Center for Global Security and Cooperation at Sandia National Laboratories
Emile Nakhleh: Director, GNSPI

Internal Advisory Board

Cristina Beato: Executive Director, UNM HSC, and Professor, Family Community Medicine
Christos Christodoulou: Dean & Professor, School of Engineering
Rob Delcampo: Dean, University College
Chris Duval: Associate Professor, Department of Geography
Frank Gilfeather: Director, Global and National Security Undergraduate Programs and Professor Emeritus, Mathematics & Statistics
Raul Gouvea: Distinguished Professor and Chair, Department of Finance, International, Technology Management and Entrepreneurship (FITE)
Derek Hamilton: Professor and Chair, Psychology
Joshua Kastenberg: Professor of Evidence and Procedure, School of Law
Mark Peceny: Dean, College of Arts and Sciences and Professor, Political Science
Bill Pockman: Chair & Professor, Biology
Edl Schamiloglu: Distinguished Professor & Director of COSMIAC, Electrical Computer Engineering
Bill Stanley: Professor, Political Science and Director, Latin American & Iberian Institute
Richard Wood: Senior Vice Provost for Academic Mission (Interim)

Emile Nakhleh: Director, GNSPI

Market and Competitors

The UN chronicle (https://unchronicle.un.org/article/national-security-versus-global-security) defines national security as 'the ability of a state to cater for the protection and defense of its citizenry" whereas global security focuses on the interdependence of states to guard against issues caused by nature, globalization and other natural or man-made problems. The UN office of Coordination of Humanitarian Affairs lists wide ranging areas as part of security. These include the ability to create jobs and limit poverty; efforts to reduce hunger; work on health concerns such as safety of food and reduction of disease; reduction of effect of natural disasters and man-made pollution; disruption and minimization of violence and terror; mitigation of racial, religious and other tensions and a stand against political repression and human rights violations. This list is long and covers many hard problems that are not easy to solve requiring major activities by many governments, non-governmental entities and businesses. The field has become very important for the survival of the human race and its ability to function.

The issues in global and national security have become linked and more people are required to deal with the collection of data, analysis of issues and the creation of a path forward. It is with this in mind that the Global and national Security Institute at UNM is created. Many of our NM, US and World organizations need workers who have the expertise to solve these problems. The job opportunities in this field are numerous and include job descriptions such as (http://www.securitydegreehub.com/top-national-security-jobs/) :

a) **Linguist/Foreign Language Expert:** estimated salaries between $60,000 to as high as over $100,000 a year.
b) **National Security Analyst:** estimated salaries as low as $50,000 for junior analyst roles to as high as $100,000.
c) **Cyber-Security Specialist:** average starting salary around $80,000 and higher.
d) **Logistics Specialist:** estimated salaries as low as $50,000 and as high as $90,000 and above.
e) **Mathematician:** estimated salaries with the average salary being around $70,000 to over $100,000.
f) **Business Analyst/Project Manager:** estimated salaries range from $60,000 to more than $100,000.
g) **Cryptologist:** estimated salaries $60,000 and higher.
h) **Accountant:** estimated salaries around $70,000 to over $100,000.
i) **Security Officer:** estimated salaries 40,000 to as high as $80,000.
j) **Intelligence Officer: estimated salaries** anywhere between $70,000 to over $100,000.

A quick look at our course offerings shows that we are addressing these demands and our graduates will have no issues in finding jobs. It would be helpful to get more specific needs assessment from our target employers but some of that might be privileged information and as a result hard to obtain but one can agree that the future demand for this expertise is on the rise.

UNM GNSPI

The UNM Global and National Security Policy Institute offers a unique program in at least three data points: It is the only such Institute in the State of New Mexico; it is multidisciplinary in nature because of the broad definition of global and national security it espouses; and it is in close proximity to the two of the world's most renowned national laboratories—Sandia and Los Alamos—and with which UNM has had on-going collaborative arrangements in research and teaching. UNM also collaborates closely with the Air Force Research Lab, also located in Albuquerque, New Mexico. The three labs and the national security companies, for example Raytheon and Northrop- Grumman, are strong supporters of the institute and plan to send some of their employees to take graduate courses in global and national security. The labs expect a sizable turnover in their workforce over the next five years. Furthermore, some of their very senior managers sit on the GNSPI Advisory Board. Because of its geographic location, the wealth of its academic program, and the diversity of its students, UNM is well positioned for recognition as a leading institution in global and national security policy institution.

Institutes at Other Universities

Many other universities across the United States have created institutes and centers focusing on foreign policy and national security themes, broadly defined. Such universities include the American University, Georgetown University, George Washington University, Johns Hopkins School of International Studies, Harvard, Princeton, University of California Los Angeles, University of Colorado, University of Denver, Arizona State University, Texas A & M, and the University of Texas. Many of these programs, however, tend to focus on one theme in the broad area of national security, such as terrorism, diplomacy, economic development, cyber security, missile defense, space exploration, nuclear weapons and non-proliferation and policy, NATO, climate change, banking and commerce, trade agreements, technology transfer, global health, public diplomacy, peace studies, human rights, and grand strategies and foreign policy making. Other institutes and centers also concentrate on geographic regions and countries, including Africa, the Middle East, Sub-Sahara Africa, South Asia, Southeast Asia, Latin America, the European Union, Russia, and China.

The list below shows some of the competitors, their offerings and other data such as cost of program:

Global and National Security Policy Program						
Name	**Type of Program**	**Discipline**	**Degree/Certificate**	**Program Credit Hours**	**In State Cost**	**Out of State Cost**
American University	Program	National Security	Course	1 Credit Hour	$ 790	$ 790
University of California Los Angeles	Program	Emergency Management & Homeland Security	Certificate	6 Courses	$ 9,690	$ 9,690
Stanford	Program	International Policy Studies	Certificate	15 Units	$18,900	$ 18,900
University of New Mexico	**Institute**	**Global and National Security Policy**	**Graduate Degree**	**33 Credit Hours ($600 per Credit Hours)**	**$19,800**	**$ 19,800**
Arizona State University	Program	Global Security	Graduate Degree	30 Credit Hours	$22,860	$ 22,860
University of Pittsburgh	Program	Homeland Security	Certificate	18 Credit Hours	$22,428	$ 33,786
University of Texas	Program	Global Policy Studies	Graduate Degree	36 Credit Hours	$18,940	$ 36,060
University of Colorado	Program	Cyber Security	Graduate Degree	30 Credit Hours	$31,500	$ 40,500
Texas A&M	Program	National Security Policy	Certificate	15 Credit Hours	$23,068	$ 44,112
John Hopkins	Program	Global Security Studies	Certificate	12 Courses ($3,783 per Course)	$45,396	$ 45,396
University of Denver	Program	International Security	Graduate Degree	86 Credit Hours	$47,520	$ 47,520
San Diego University	Program	Political Science	Graduate Degree	2 Years	$35,576	$ 64,088
University of Arizona	Program	International Security	Graduate Degree	36 Credit Hours	$30,024	$ 69,924
George Washington	Program	International Studies	Graduate Degree	40 Credit Hours ($1,765 per Credit)	$70,600	$ 70,600
Georgetown	Institute	International Affairs	Graduate Degree	36 Credit Hours	$71,820	$ 71,820
Princeton	Program	Public Policy	Graduate Degree	2 Years ($49,300 per Year)	$98,600	$ 98,600

Financial Analysis

The program will depend on many sources of revenue. These come from tuition revenue, UNM subsidy, and external support. Details about each is as follows:

- *Tuition Revenue.* In order to align this program with University tuition rates comparable internally with our current professional programs, we will set tuition at $600 per student credit hour. Therefore, the total cost of the degree program will be $19,800 and $3,600 per module, or $1,800 per course. The cost of the program is relatively low compared to other institutions with similar programs. However, because UNM is a public institution funded by the state, keeping graduate programs affordable is necessary in order to provide access to the population the state serves.
- *UNM Subsidy.* The University is committed to the launch of this program and therefore has committed to subsidize this program for the first three years or until the program generates enough resources to be self-sustaining. The current subsidy includes funding

the director's position, staffing resources for the program, funding for course development and operating expenses.

- *External Subsidy.* As of this writing, GNSPI has received a commitment from Los Alamos National Laboratory of $50,000 per year for three years. This funding will be used for course and content development of each module. GNSPI plans to continue to reach out to other entities, such as Sandia National Laboratories, for support of the program's academic development, as well as collaborative opportunities for workforce training and development.

Expenses for the program consist of salary and benefits, which include the director of the program, faculty for both teaching and developing the courses, staff support, and fringe benefits. Operating expenses include supplies, equipment, travel for recruitment and research activities, the university's overhead tax and conference/symposiums.

In order for the program to break even with current subsidies, a total of 26 students per graduate program will need to be enrolled per academic year. Without subsidies, a total of approximately 40 students per graduate program will need to be enrolled per academic year. We are not anticipating in the first three years to have the projected enrollments to break even. With additional resources, we believe by year four the program can be self-sustaining.

A five year projection of revenues and expenses is as follows:

UNM | *Global & National Security Policy Institute*

Global and National Security Policy Institute 5 Year Projection

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue					
Tuition Revenue -					
Per module	$ 7,200	$ 10,800	$ 18,000	$ 36,000	$ 36,000
Per graduate degree	$144,000	$216,000	$288,000	$432,000	$432,000
Other Revenue-					
UNM Subsidy	$100,000	$100,000	$100,000		
External Support	$ 50,000	$ 50,000	$ 50,000		
Total Revenue	**$301,200**	**$376,800**	**$456,000**	**$468,000**	**$468,000**
Expenses					
Salary Expense-					
Director	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Faculty	$ -	$ 50,000	$ 75,000	$ 75,000	$ 75,000
Course Development	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Temporary Faculty	$ 48,000	$ 72,000	$ 96,000	$ 96,000	$ 96,000
Staff Support	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Fringe Benefits	$ 30,000	$ 45,000	$ 52,500	$ 52,500	$ 52,500
Operating Expense-					
Conferences/Symposiums	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Supplies	$ 1,000	$ 1,500	$ 1,500	$ 1,500	$ 1,500
Equipment	$ 3,000	$ 4,000	$ 5,000	$ 5,000	$ 5,000
Other (travel, taxes, etc.)	$ 13,000	$ 13,000	$ 15,000	$ 15,000	$ 15,000
Administrative Overhead	$ 27,500	$ 36,550	$ 42,500	$ 42,500	$ 42,500
Total Expenses	**$302,500**	**$402,050**	**$467,500**	**$467,500**	**$467,500**
Net	**$ (1,300)**	**$ (25,250)**	**$ (11,500)**	**$ 500**	**$ 500**

Tuition Rates	Year 1	Year 2	Year 3	Year 4	Year 5
Rate per module (1)	$ 3,600	$ 3,600	$ 3,600	$ 3,600	$ 3,600
Rate per graduate degree (2)(3)	$ 19,800	$ 19,800	$ 19,800	$ 19,800	$ 19,800

Student Projections	Year 1	Year 2	Year 3	Year 4	Year 5
Students per module	2	3	5	10	10
Students per graduate degree	10	15	20	30	30

(1) Each module consists of two courses equivalent to 6 student credit hours (SCH), rate $600 per SCH

(2) Total degree consists of 33 SCH.

(3) Total degree timeframe is 18 months (1 module every 3 months).

Catalog Description

Introduction

The Master of Science degree in Global and National Security studies (MSGNS) is non-traditional, interdisciplinary, and consists primarily of online graduate modules (equivalent to two courses each) and in-person meetings. The MSGNS degree will be awarded through Graduate Studies. The degree is designed for individuals already in the workforce and aims at providing them with a broader context of security issues that help them with their work. At least four important factors underscore the uniqueness of this initiative: First, UNM's proximity to, and close collaboration with, two world renowned nuclear and engineering laboratories, Los Alamos and Sandia. Second, a comprehensive definition of global and national security, which underpins the mission of GNSPI and the MSGNS degree, encompassing technology, cybersecurity, nuclear policy, global health, terrorism, cultural and legal dynamics, leadership and decision making, and natural resources. Third, a belief that the United States is not an island onto itself and that what happens globally—economically, politically, militarily, and culturally—directly affects the security of the United States and the safety of its interests and citizens—diplomats and the military—overseas. Fourth, what happens globally affects New Mexico and its government, private, and educational institutions, as well as the citizens of the state.

The demand for national and global security graduates is on the rise given all the events occurring daily in the world. The GNSPI has competing institutions that offer degrees in the field but the GNSPI has adopted a more inclusive model of all issues and problems across many fields and disciplines to offer a comprehensive study and research program. The program needs to advertise and establish relationships with many employers so that we can recruit students to the program. The value of the UNM program lies in its comprehensiveness and proximity to the two major labs—Sandia and Los Alamos—which makes it possible for a student from the workforce to continue one's career while developing important knowledge and skills in an area. The importance of this program is highlighted by the myriad of issues that nation states have faced in recent decades. The rise of non-state actors—in politics, economics, cyber technology, nuclear proliferation, and hacking—has challenged the old order of nation states and has created new security challenges that are global in nature. Such challenges and ensuing threats will also impact the United States and the security of American citizens and institutions. The GNSPI educational and research program would cover several important international issues that transcend states and regions. They range from nuclear weapons and non-proliferation power issues to natural resources (food, water, and energy), humanitarian issues, innovation, and infrastructure resiliency. In addition to the global security environment, the roles that nation-states, international institutions, and global business corporations have played are shifting. We must understand the impact of these shifts in roles and responsibilities to know

where technology can contribute to a more stable world. The MSGNS degree aims at helping potential students to have a broader understanding of the strategic, policy/institutional, technological, and cultural contexts in which scientists, engineers, technologists, lawyers, businesspeople, and other public and private sector employees operate.

Degree Offered

Master of Science in Global and National Security (MSGNS). The degree will be awarded through Graduate Studies

Admissions Requirements

A Bachelor's degree in any field.

Degree Requirements

To receive the MSGNS degree, a student must complete 33 credits consisting of a three-credit pathway course, two required modules (12 credits), and three elective modules (18 credits). The modules would draw on existing courses and on-going research or could be developed as new ones.

A module is a six-credit, eight-week course focusing on a major global and national security theme, such as globalization and innovation, cyber security, nuclear policy, foreign policy and terrorism, the legal foundations of global and national security, decision making and leadership, environmental security, and food, water, and energy security. Modules could also focus on different regions across the globe, including Latin America, Asia, the Middle East, and Europe. The modules are based broadly on two courses in the catalog of the departments offering the module or on existing research relating to the theme of the module and the courses. The courses could be existing courses or listed as "Special Topics."

The first two pilot modules that have been offered—"Globalization, Technology, Innovation, and National Security" (Anderson) and "Cyber Security and directed Energy" (Engineering)—were listed under the "Special Topics" moniker (MGT 594-595 and ECE 595). The module that is being offered in the spring 2018 semester is titled Environmental Security and will be taught out of the departments of Geography and Environmental Studies and Political Science. It will be listed as "Special Topics" under GEOG 499-001 and POLS 512-003. The "Special Topics" numbering will be used in the first three years of the program.

The MSGNS is a professional degree, which follows the non-thesis option. Students, however, are required to submit a significant research project at the end of every module they take in the program. The departments offering the modules are responsible for the academic content and integrity of the modules.

The 33 credit requirements for the MSGNS include the following:

- A required three credit pathway course titled Introduction to Global and National Security (GNSI 500); two required modules (12 credits); and three elective modules (18 credits).

- The two required modules would come from any two of the following four areas: Fundamentals of Cyber Security, Directed Energy, and National Security (ECE 595); Nuclear Policy, Agencies, and Organizations (NE 515); Decision Making and Leadership (PSY 551); and Globalization and Cultures (MGT 594, SOC 532).

- The three elective modules would be taken from the following areas: US Foreign Policy, Terrorism, Institutions and National Security (POLS 512); Infrastructure Resilience and Sustainability (CE 531, CE 571, BIO 514); Environmental Security (GEOG 499, POLS 512); Global Health and Human Security (PH 583); international Law, National Law, and National Security (Law 505, Law 541, ANTH 539); and Technology, Innovation, and National Security: Latin America (MGT 595).

The modules will have to be approved by the department that offers them and by a University-wide, senior level Executive Committee appointed and chaired by the Director of the GNSPI in consultation with the Provost, the Dean of Graduate Studies, and the Deans of the schools and colleges involved in the program. The eight-member Executive Committee will represent all stakeholders at UNM: College of Arts & Sciences (two members); School of Engineering (two members); Anderson School of Management (one member); School of Law (one member); Health Sciences Center (one member); and the Director of the Undergraduate Global and National Security Studies Program.

The Director of the Global and National Security Policy Institute will administratively report to the Provost but will also work closely with the Dean of Graduate Studies, the MSGNS Executive Committee, the Registrar's Office, and the Deans of individual schools to guarantee the academic integrity of the program. A major selling point of this degree is that a potential student could complete the requirements for the degree in one calendar year.

Module Offerings in a Calendar Year

Fall Semester: Pathway course (3 credits); one required module (6 credits); one elective module (6 credits)

Spring Semester: Pathway course (3 credits); one required module (6 credits); one elective module (6 credits)

Summer Session: Pathway course (3 credits); one required module (6 credits); one elective module (6 credits)

Fall Semester: Pathway course (3 credits); one required module (6 credits); one elective module (6 credits)

The courses/modules could draw on existing courses or could be developed as new ones. Some of the courses or modules, at least for the first three years of the program, could utilize the "Special Topics" numbering in the catalog of the departments involved—for example, MGT 594-595 (Anderson) or ECE 595 (Engineering). Applicants for the MSGNS are required to have a college degree in any field. The MSGNS degree in grounded in a broad definition of global and national security, including social, economic, and humanitarian issues; infrastructure resiliency; technology and innovation; nuclear issues; environmental security natural resources, food and water security, and energy independence; health and global epidemics; cybersecurity and hacking; terrorism; nuclear proliferation, policy, and non-proliferation; and the rule of law, especially as it applies to privacy, human rights, and citizenship. Five courses (15 credit hours) or three modules (18 credit hours) plus a three-credit pathway course will be required as core courses, with the remainder to be taken as electives. The core courses or modules would come from the following areas: cyber security: technology and innovation; policy, leadership and decision making; the rule of law, legal interactions, and individual rights and responsibilities; and global cultural narratives and dynamics. Most departments and schools across the campus will be able to participate in the program.

Recent global developments—from cyber security to epidemics—pose a real challenge to American security and have shown that what happens in Africa, Latin America, the Middle East, Europe, and Asia no longer stays there. The proposed degree provides a welcome interdisciplinary approach to these challenges. According to the endorsement letters, the timing of the new MSGNS program is ideal, especially in light of current events globally, and our need to understand the cultural, social, economic, and political ramifications of our business and national security decisions.

Furthermore, the proposed MSGNS degree is a career enhancer on at least two levels: First, it will empower employees in the workforce to perform at a higher level because of the newly acquired knowledge about global issues and dynamics; and second, it will enhance students' competitive edge as they seek new careers in this area. The suggested courses and modules fit together in a coherent program of education and research, which will help its graduates becomes more productive global national security citizens.

Modules

Introduction

The Master of Science degree in Global and National Security studies (MSGNS) is non-traditional, interdisciplinary, and consists primarily of online graduate modules (equivalent to

two courses each) and in-person meetings. The MSGNS degree will be awarded through Graduate Studies. The degree is designed for individuals already in the workforce and aims at providing them with a broader context of security issues that help them with their work. At least four important factors underscore the uniqueness of this initiative: First, UNM's proximity to, and close collaboration with, two world renowned nuclear and engineering laboratories, Los Alamos and Sandia. Second, a comprehensive definition of global and national security, which underpins the mission of GNSPI and the MSGNS degree, encompassing technology, cybersecurity, nuclear policy, global health, terrorism, cultural and legal dynamics, leadership and decision making, and natural resources. Third, a belief that the United States is not an island onto itself and that what happens globally—economically, politically, militarily, and culturally—directly affects the security of the United States and the safety of its interests and citizens—diplomats and the military—overseas. Fourth, what happens globally affects New Mexico and its government, private, and educational institutions, as well as the citizens of the state.

The demand for national and global security graduates is on the rise given all the events occurring daily in the world. The GNSPI has competing institutions that offer degrees in the field but the GNSPI has adopted a more inclusive model of all issues and problems across many fields and disciplines to offer a comprehensive study and research program. The program needs to advertise and establish relationships with many employers so that we can recruit students to the program. The value of the UNM program lies in its comprehensiveness and proximity to the two major labs—Sandia and Los Alamos—which makes it possible for a student from the workforce to continue one's career while developing important knowledge and skills in an area. The importance of this program is highlighted by the myriad of issues that nation states have faced in recent decades. The rise of non-state actors—in politics, economics, cyber technology, nuclear proliferation, and hacking—has challenged the old order of nation states and has created new security challenges that are global in nature. Such challenges and ensuing threats will also impact the United States and the security of American citizens and institutions. The GNSPI educational and research program would cover several important international issues that transcend states and regions. They range from nuclear weapons and non-proliferation power issues to natural resources (food, water, and energy), humanitarian issues, innovation, and infrastructure resiliency. In addition to the global security environment, the roles that nation-states, international institutions, and global business corporations have played are shifting. We must understand the impact of these shifts in roles and responsibilities to know where technology can contribute to a more stable world. The MSGNS degree aims at helping potential students to have a broader understanding of the strategic, policy/institutional, technological, and cultural contexts in which scientists, engineers, technologists, lawyers, businesspeople, and other public and private sector employees operate.

Degree Offered

Master of Science in Global and National Security (MSGNS). The degree will be awarded through Graduate Studies

Admissions Requirements

A Bachelor's degree in any field.

Degree Requirements

To receive the MSGNS degree, a student must complete 33 credits consisting of a three-credit pathway course, two required modules (12 credits), and three elective modules (18 credits). The modules would draw on existing courses and on-going research or could be developed as new ones.

A module is a six-credit, eight-week course focusing on a major global and national security theme, such as globalization and innovation, cyber security, nuclear policy, foreign policy and terrorism, the legal foundations of global and national security, decision making and leadership, environmental security, and food, water, and energy security. Modules could also focus on different regions across the globe, including Latin America, Asia, the Middle East, and Europe. The modules are based broadly on two courses in the catalog of the departments offering the module or on existing research relating to the theme of the module and the courses. The courses could be existing courses or listed as "Special Topics."

The first two pilot modules that have been offered—"Globalization, Technology, Innovation, and National Security" (Anderson) and "Cyber Security and directed Energy" (Engineering)— were listed under the "Special Topics" moniker (MGT 594-595 and ECE 595). The module that is being offered in the spring 2018 semester is titled Environmental Security and will be taught out of the departments of Geography and Environmental Studies and Political Science. It will be listed as "Special Topics" under GEOG 499-001 and POLS 512-003. The "Special Topics" numbering will be used in the first three years of the program.

The MSGNS is a professional degree, which follows the non-thesis option. Students, however, are required to submit a significant research project at the end of every module they take in the program. The departments offering the modules are responsible for the academic content and integrity of the modules.

The 33 credit requirements for the MSGNS include the following:

- A required three credit pathway course titled Introduction to Global and National Security (GNSI 500); two required modules (12 credits); and three elective modules (18 credits).

- The two required modules would come from any two of the following four areas: Fundamentals of Cyber Security, Directed Energy, and National Security (ECE 595); Nuclear Policy, Agencies, and Organizations (NE 515); Decision Making and Leadership (PSY 551); and Globalization and Cultures (MGT 594, SOC 532).

- The three elective modules would be taken from the following areas: US Foreign Policy, Terrorism, Institutions and National Security (POLS 512); Infrastructure Resilience and Sustainability (CE 531, CE 571, BIO 514); Environmental Security (GEOG 499, POLS 512); Global Health and Human Security (PH 583); international Law, National Law, and National Security (Law 505, Law 541, ANTH 539); and Technology, Innovation, and National Security: Latin America (MGT 595).

The modules will have to be approved by the department that offers them and by a University-wide, senior level Executive Committee appointed and chaired by the Director of the GNSPI in consultation with the Provost, the Dean of Graduate Studies, and the Deans of the schools and colleges involved in the program. The eight-member Executive Committee will represent all stakeholders at UNM: College of Arts & Sciences (two members); School of Engineering (two members); Anderson School of Management (one member); School of Law (one member); Health Sciences Center (one member); and the Director of the Undergraduate Global and National Security Studies Program.

The Director of the Global and National Security Policy Institute will administratively report to the Provost but will also work closely with the Dean of Graduate Studies, the MSGNS Executive Committee, the Registrar's Office, and the Deans of individual schools to guarantee the academic integrity of the program. A major selling point of this degree is that a potential student could complete the requirements for the degree in one calendar year.

Module Offerings in a Calendar Year

Fall Semester: Pathway course (3 credits); one required module (6 credits); one elective module (6 credits)

Spring Semester: Pathway course (3 credits); one required module (6 credits); one elective module (6 credits)

Summer Session: Pathway course (3 credits); one required module (6 credits); one elective module (6 credits)

Fall Semester: Pathway course (3 credits); one required module (6 credits); one elective module (6 credits)

Learning Outcomes of the MSGNS Degree

The UNM MSGNS trains students through education and research to become successful practitioners in the broad field of global and national security. Graduates of the program will be able to:

1. Explore and produce innovative solutions to global problems that range from terrorism to technology transfer, health crises, trade, global financial investments, nuclear proliferation and nonproliferation, environmental degradation, leadership decision making, and population movements and refugees
2. Strengthen their competitive edge as they seek employment and career advancement opportunities, nationally and globally
3. Work in national labs, government offices and agencies dealing with national security, broadly define, and in international organizations focusing on issues of war, peace, and diplomacy and on humanitarian issues
4. Study and research global trends in policy areas, understand their implications globally and nationally, and function well in global and national diverse environments.
5. Assess how technology and innovation impact national economic and security policy
6. Analyze the link between the economic, social, environmental, political, technological factors and variables and global and national security
7. Forecast future global technological challenges in light of recent developments and security threats.

Timeline

Although pilot modules have already been offered, the MSGNS is expected to go on the books in the Spring Semester of 2019. We expect to offer a sufficient number of six-credit hour modules to allow students to finish the degree work (33 credit hours) over a period of 12-15 months. The modules are intended to be team-taught by UNM faculty or by UNM faculty and scientists and technology experts from the labs and the national security industry in New Mexico. Initially, the three-credit pathway required course will be offered every semester.

Respectfully submitted,
Nicole Dopson, Director, Financial Operations, Academic Affairs
Dr. Emile Nakhleh, Director, Global and National Security Policy Institute

Appendix II.
Comparison Institutions

UNM Global and National Security Policy Institute

Comparison Institutions

The UNM Global and National Security Policy Institute offers a unique program in at least three data points: It is the only such Institute in the State of New Mexico; it is multidisciplinary in nature because of the broad definition of global and national security it espouses; and it is in close proximity to the two of the world's most renowned national laboratories—Sandia and Los Alamos—and with which UNM has had on-going collaborative arrangements in research and teaching. UNM also collaborates closely with the Air Force Research Lab, also located in Albuquerque, New Mexico. The three labs and the national security companies, for example Raytheon and Northrop- Grumman, are strong supporters of the institute and plan to send some of their employees to take graduate courses in global and national security. The labs expect a sizable turnover in their workforce over the next five years. Furthermore, some of their very senior managers sit on the GNSPI Advisory Board. Because of its geographic location, the wealth of its academic program, and the diversity of its students, UNM is well positioned for recognition as a leading institution in global and national security policy institution.

Institutes at Other Universities

Many other universities across the United States have created institutes and centers focusing on foreign policy and national security themes, broadly defined. Such universities include the American University, Georgetown University, George Washington University, Johns Hopkins School of International Studies, Harvard, Princeton, University of California Los Angeles, University of Colorado, University of Denver, Arizona State University, Texas A & M, and the University of Texas. Many of these programs, however, tend to focus on one theme in the broad area of nation security, such as terrorism, diplomacy, economic development, cyber security, missile defense, space exploration, nuclear weapons and non-proliferation and policy, NATO, climate change, banking and commerce, trade agreements, technology transfer, global health, public diplomacy, peace studies, human rights, and grand strategies and foreign policy making. Other institutes and centers also concentrate on geographic regions and countries, including Africa, the Middle East, Sub-Sahara Africa, South Asia, Southeast Asia, Latin America, the European Union, Russia, and China.

The list below shows some of the competitors, their offerings and other data such as cost of program:

Global and National Security Policy Program							
Name	Website	Type of Program	Discipline	Degree/Certificate	Program Credit Hours	In State Cost	Out of State Cost
American University	http://www.american.edu/sis/nslc/intelligence.cfm	Program	National Security	Course	1 Credit Hour	$ 790	$ 790
University of California Los Angeles	http://www.du.edu/korbel/media/documents/program-docs/ma-intl-security-degree-overview-3pages-detail-2016-17_nov282016.pdf	Program	Emergency Management & Homeland Security	Certificate	6 Courses	$ 9,690	$ 9,690
Stanford	http://exploredegrees.stanford.edu/schoolofhumanitiesandsciences/internationalpolicystudies/	Program	International Policy Studies	Certificate	15 Units	$18,900	$ 18,900
University of New Mexico	http://gnspi.unm.edu/	**Institute**	**Global and National Security Policy**	**Graduate Degree**	**33 Credit Hours ($600 per Credit Hours)**	**$19,800**	**$ 19,800**
University of Pittsburgh	http://www.cgs.pitt.edu/academics/certificates/national-preparedness-and-homeland-security	Program	Homeland Security	Certificate	18 Credit Hours	$22,428	$ 33,786
Arizona State University	https://webapp4.asu.edu/programs/t5/majorinfo/ASU00/LAGSCMA/graduate/false	Program	Global Security	Graduate Degree	30 Credit Hours	$22,860	$ 22,860
University of Texas	http://lbj.utexas.edu/master-global-policy-studies	Program	Global Policy Studies	Graduate Degree	36 Credit Hours	$18,940	$ 36,060
University of Colorado	http://www.colorado.edu/itp/sites/default/files/attached-files/itp-cs_brochure_32017.pdf	Program	Cyber Security	Graduate Degree	30 Credit Hours	$31,500	$ 40,500
Texas A&M	http://bush.tamu.edu/certificate/cnsa/	Program	National Security Policy	Certificate	15 Credit Hours	$23,068	$ 44,112
John Hopkins	https://www.jhu.edu/academics/#!/programlevel=masters	Program	Global Security Studies	Certificate	12 Courses ($3,783 per Course)	$45,396	$ 45,396
University of Denver	http://www.du.edu/korbel/media/documents/program-docs/ma-intl-security-degree-overview-3pages-detail-2016-	Program	International Security	Graduate Degree	86 Credit Hours	$47,520	$ 47,520
San Diego University	http://catcher.sandiego.edu/items/usd/2015-16-graduate.pdf	Program	Political Science	Graduate Degree	2 Years	$35,576	$ 64,088
University of Arizona	https://grad.arizona.edu/programs/programinfo/INTSCMA	Program	International Security	Graduate Degree	36 Credit Hours	$30,024	$ 69,924
George Washington	https://www.programs.gwu.edu/list-graduate-programs?field_discipline_tid%5B%5D=25&field_discipline_tid%5B%5D=5008&field_discipline_tid%5B%5D=5009&field_discipline_tid%5B%5D=37	Program	International Studies	Graduate Degree	40 Credit Hours ($1,765 per Credit)	$70,600	$ 70,600
Georgetown	https://www.georgetown.edu/academics/international-affairs	Institute	International Affairs	Graduate Degree	36 Credit Hours	$71,820	$ 71,820
Princeton	https://www.princeton.edu/academics/area-of-study/public-policy-woodrow-wilson-	Program	Public Policy	Graduate Degree	2 Years ($49,300 per Year)	$98,600	$ 98,600

Appendix III.
Syllabi Examples

Cybersecurity and National Security

ECE 595 section 003

Professor: Dr. Chris Lamb
Phone: 505-228-8090
Email: cclamb@unm.edu

I.   Course Description

This course will cover the importance of cybersecurity to national policy today. Specifically, we're going to discuss the history of cybersecurity as a strategic weapon, how long it's been recognized as such and why, and recent campaigns where cybersecurity (or the lack thereof) has been used as a weapon.

Recent developments over the past ten years have highlighted the transformational nature of cybersecurity in national policy and with regard to national security. We've seen (alleged) attacks against utilities, manufacturing, and corporations, all with links to nation-aligned groups. We're going to cover how cybersecurity as a national property of strategic importance was first recognized in the united states, and how we've evolved over the years with respect to how it is addressed. We'll also cover studies of recent campaigns conducted by suspected nation-state aligned groups to understand how these kinds of attacks have evolve and how they're executed today.

At the end of the course, the students will write a research paper on a cybersecurity topic they select, and give a presentation over that topic to the class.

II.   Course Objectives and Methodology

The class will be structured collaboratively, with shared readings and discussion over those readings. At the end of the course, my goal is for all the involved students to have a clear understanding of how cybersecurity has evolved as an area of national importance, why its more important than ever today, and how nation-states seem engage in this kind of activity today. When we finish, you'll know why cybersecurity is important as a national policy area and how malware campaigns are structured and executed.

III.   Learning Objectives

1. Understand the history and importance of cybersecurity as a policy area.

2. Analyze recent campaigns to understand how these kinds of attacks are executed

today.

3. Study how today's campaigns are structured and executed, and how they have evolved over the past thirty years.

IV.   Course Delivery

This course will be delivered on line (distance learning) giving the students flexibility and ability to complete their academic work solely on line. Course materials, such as reading assignments, power point presentations, assignments and projects will be available on online. Students are required to read the materials and to discuss with other students and the instructor the materials including research that the students have undertaken as part of the requirements.

Evaluation Procedures

a) **Assignments/Discussions/Deliverables that coincide with the 4 parts of the course:** Students will be asked to engage in a discussion with other students and the faculty on a number of questions based on the reading assignment and the link between the materials and security. Some of the questions posed for discussion may require the students to engage on additional research beyond their course's reading assignment. These discussions are part of the overall grade of the course. These assignments will account for 50% of students' overall grade. The assignments will be graded based on the depth of the arguments presented by the discussion.

b) **Research Project**: Students will be required to work on a 25-page research project, on a topic previously approved by your instructor. In the interest of providing more benefits to every student (from their work but also from attending presentations by other students), the instructors will approve on a first-come first-serve basis a different technology area for each student. This way, a student will work on one technology area but listen to final presentation and engage in discussions on multiple areas.

This research project will account for the remaining 50% of the student's final grade. The paper is due on the last week of class and will be presented by the student at the end of the course during the face-to-face meetings of October 27-29.

Project Description: A critical success factor continues to be the ability to write clearly, concisely, and creatively. The goal of this joint research project is to examine the impact of cybersecurity and the lack thereof on global security. Each student will work on a different technology area in cybersecurity, and examine it in a national security context. How does this technology area affect the future, how well are we doing and what are the major policy and strategic recommendations that you have for the US to do better in this area? Your project should also consider likely global scenario changes in the next 20-25 years as much as possible.

a) **Research Paper Guidelines**: Roman/Helvetica/Fourier 12 point font, double spaced, references should follow IEEE guidelines. These fonts and reference formatting should be supported in all major word processors or typesetting programs (e.g. Latex).

b) **Grading Procedure**: Grading procedure will be based on the following criteria: a) Does the weekly discussion and the research upon which it is based have a clear, and creative core argument? b) Is that core argument well supported? c) Is it well written? And d) Can we draw policy implications from it?

c) **Grading Scale**: Your final grade will be a combination of the points assigned to the assignments (50 points) and your research paper project (50 points)

The scale used is as follows:

A+ (95 -100 points average);

A (90-94 points average);

B+ (85-89 points average);

B (80-84 points average);

C+ (75-79 points average);

C (70-74 points average);

D (69-60 points average).

Honor Code: UNM formally recognizes the responsibility of our students and professors to behave in an ethical manner.

Netiquette

- *"In following with the UNM Student Handbook, all students will show respect to their fellow students and instructor when interacting in this course. Take Netiquette suggestions seriously. Flaming is considered a serious violation and will be dealt with promptly. Postings that do not reflect respect will be taken down immediately." (Rebecca Adams, OLIT 535)*

- *"This course encourages different perspectives related to such factors as gender, race, nationality, ethnicity, sexual orientation, religion, and other relevant cultural identities. The course seeks to foster understanding and inclusiveness related to such diverse perspectives and ways of communicating."*

- *Link to Netiquette document: http://online.unm.edu/help/learn/students/pdf/ discussion- netiquette.pdf*

Copyright Issues

All materials in this course fall under copyright laws and should not be downloaded, distributed, or used by students for any purpose outside this course.

Accessibility

The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. If you have a disability requiring accommodation, please contact the UNM Accessibility Resource Center in 2021 Mesa Vista Hall at 277-3506 or http://as2.unm.edu/index.html. Information about your disability is confidential.

• Blackboard's Accessibility statement: http://www.blackboard.com/accessibility.aspx

• Include links to accessibility statements for all other technologies included in the course.

Academic Misconduct

You should be familiar with UNM's Policy on Academic Dishonesty and the Student Code of Conduct (http://pathfinder.unm.edu/campus-policies/other-campus-policies.html) which outline academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act.

Example Drop Policy

UNM Policies: This course falls under all UNM policies for last day to drop courses, etc. Please see http://www.unm.edu/studentinfo.html or the UNM Course Catalog for information on UNM services and policies. Please see the UNM academic calendar for course dates, the last day to drop courses without penalty, and for financial disenrollment dates.

V.   Technical Skills

In order to participate and succeed in this class, you will need to be able to perform the following basic technical tasks:

• Use UNM Learn (help documentation located in "How to Use Learn" link on left course menu, and also at http://online.unm.edu/help/learn/students/)

• Use email – including attaching files, opening files, downloading attachments

• Copy and paste within applications including Microsoft Office

• Open a hyperlink (click on a hyperlink to get to a website or online resource)

• Use Microsoft Office applications

- Create, download, update, save and upload MS Word documents

- Create, download, update, save and upload MS PowerPoint presentations

- Create, download, update, save and upload MS Excel spreadsheets

- Download, annotate, save and upload PDF files

• Use the in-course web conferencing tool (Collaborate Web Conferencing software)

• Download and install an application or plug in – required for participating in web conferencing sessions

Technical Requirements

Computing

• A high speed Internet connection is highly recommended.

• Supported browsers include: Internet Explorer, Firefox, and Safari. Detailed Supported Browsers and Operating Systems: http://online.unm.edu/help/learn/students/

• Any computer capable of running a recently updated web browser should be sufficient to access your online course. However, bear in mind that processor speed, amount of RAM and Internet connection speed can greatly affect performance. Many locations offer free high-speed Internet access including UNM's Computer Pods.

• For using the Kaltura Media Tools inside Learn, be sure you have downloaded and installed the latest version of Java, Flash, and Mozilla Firefox. They may not come preloaded.

• Microsoft Office products are available free for all UNM students (more information on the UNM IT Software Distribution and Downloads page: http://it.unm.edu/software/index.html)

For UNM Learn Technical Support: (505) 277-0857 (24/7) or use the "Create a Support Ticket" link in your course.

Web Conferencing

Web conferencing will be used in this course during the following times and dates: For the online sessions, you will need:

• A USB headset with microphone. Headsets are widely available at stores that sell electronics, at the UNM Bookstore or online.

- A high-speed internet connection is highly recommended for these sessions. A wireless Internet connection may be used if successfully tested for audio quality prior to web conferencing.

For UNM Web Conference Technical Help: (505) 277-0857

Tracking Course Activity

UNM Learn automatically records all students' activities including: your first and last access to the course, the pages you have accessed, the number of discussion messages you have read and sent, web conferencing, discussion text, and posted discussion topics. This data can be accessed by the instructor to evaluate class participation and to identify students having difficulty.

VI. Course Content

Content for the course will come from a variety of sources, including freely available technical reports and the course textbook. The text for the course is **Dark Territory: The Secret History of Cyberwar**, by Fred Kaplan. It's available via the UNM bookstore. We're also going to cover specific technical reports covering recent cyber campaigns.

I'm going to give you references to the required reading covering these campaigns, and these reports will give you insight into how the campaigns were prosecuted and discovered. I strongly encourage you to supplement your reading with additional material. Find areas that you resonate with in the readings, and explore them!

One quick note - you may be tempted to download and discuss the NSA ANT catalog released by Edward Snowden. Please be aware that this material is still classified, and marked as such. If you have a security clearance, and you download this material, you will have highly classified material on your personally owned devices, and due to your clearance, you may be held responsible for that. Also, because of this, I can't discuss any of this material - sorry about that.

I intend to break the course into eight week-long modules. Some of the reports are fairly technical - as you know, this isn't a technical course, but I would like you to look these over so you understand them at a superficial level. It's important to understand how we do attribution and how malware is delivered, and some technical content is unavoidable in these areas. Look over the code to get some idea of what's going on; read to understand how the code is packaged and how it communicates with command and control elements. And ask me questions! That's what I'm here for.

Week 1 – January 16, 2017

Text: Kaplan, Chapters 1-3

Technical Reports (Stuxnet):

http://spectrum.ieee.org/telecom/security/the-real-story-of-stuxnet/

https://www.symantec.com/connect/blogs/exploring-stuxnet-s-plc-infection-process

Week 2 – January 23, 2017

Text: Kaplan, chapters 4, 5

Technical Reports (Stuxnet):

http://www.symantec.com/content/en/us/enterprise/media/security_response/whitepapers/w32_stuxnet_dossier.pdf

Week 3 – January 30, 2017

Text: Kaplan, chapters 6, 7

Technical Reports (Flame, Duqu):

https://www.crysys.hu/skywiper/skywiper.pdf

https://www.wired.com/2012/06/flame-tied-to-stuxnet/

https://www.symantec.com/content/en/us/enterprise/media/security_response/whitepapers/w32_duqu_the_precursor_to_the_next_stuxnet.pdf

Week 4 – February 06, 2017

Submit Final Report Topic

Text: Kaplan, chapters 8, 9

Technical Reports (Duqu 2):

 http://www.crysys.hu/duqu2/duqu2.pdf *(This requires registration)*

https://securelist.com/files/2015/06/
The_Mystery_of_Duqu_2_0_a_sophisticated_cyberespionage_actor_returns.pdf

Week 5 – February 13, 2017

Text: Kaplan, chapters 10, 11

Technical Reports (BlackEnergy):

http://get.cyberx-labs.com/blackenergy-report

https://www.f-secure.com/documents/996508/1030745/blackenergy_whitepaper.pdf

https://ics.sans.org/media/E-ISAC_SANS_Ukraine_DUC_5.pdf

Week 6 – February 20, 2017
Text: Kaplan, chapters 12

Technical Reports (Goldeneye):

https://blog.kaspersky.com/ransomware-for-dummies/13592/

https://blog.malwarebytes.com/threat-analysis/2016/04/petya-ransomware/

https://blog.malwarebytes.com/threat-analysis/2016/05/petya-and-mischa-ransomware-duet-p1/

https://blog.malwarebytes.com/threat-analysis/2016/07/third-time-unlucky-improved-petya-is-out/

https://blog.malwarebytes.com/threat-analysis/2016/12/goldeneye-ransomware-the-petyamischa-combo-rebranded/

Week 7 – February 27, 2017

Text: Kaplan, chapters 13

Technical Reports (RIG Exploit Kit):

https://www.trustwave.com/Resources/SpiderLabs-Blog/RIG-Exploit-Kit-%E2%80%93-Diving-Deeper-into-the-Infrastructure/

http://blog.talosintel.com/2016/01/rigging-compromise.html

https://blog.malwarebytes.com/threat-analysis/exploits-threat-analysis/2016/07/a-look-into-some-rig-exploit-kit-campaigns/

Week 8 – March 06, 2017

Submit Final Report, Presentation Material

Text: Kaplan, chapters 14, 15

Technical Reports (APT28):

https://www.crowdstrike.com/blog/bears-midst-intrusion-democratic-national-committee/

http://www2.fireeye.com/rs/fireye/images/rpt-apt28.pdf

https://www.root9b.com/sites/default/files/whitepapers/root9b_follow_up_report_apt28.pdf

Workshop with Introduction to Directed Energy – March 9,10, and 11

Final Presentations

THE UNIVERSITY *of*
NEW MEXICO

INTRODUCTION TO DIRECTED ENERGY
A UNM Global and National Security Policy Institute Online Course
ECE 595 Section 004
August 21 – October 14, 2017

Professor: Edl Schamiloglu, Distinguished Professor of Electrical and Computer Engineering
Website: http://ece-research.unm.edu/schamiloglu/
Office: 323C ECE Building
Phone: 505-277-4423
E-mail: edls@unm.edu

I - **Course Description**
Directed energy lasers and microwaves are a technology that offers the ability to deliver energy to a target at the speed-of-light with a very deep magazine. Advances in pulsed power technology, batteries, capacitors, and electronics have all contributed towards making directed energy a reality.

As directed energy technology transitions from the laboratory to the field, there will be an increasing number of personnel who will be active in the acquisitions process yet have little knowledge about directed energy or related policy issues. This course aims to fill that gap by providing an introduction to directed energy technology for the novice. The target audience includes personnel in acquisitions, those who serve in the military, policymakers, and anyone else interested in learning about the subject.

II - **Course Objectives and Methodology**
The primary goal of this course is to introduce the student to directed energy technology and related policy issues. This course will encourage students to develop critical thinking in the assessment of directed energy and its broad national security implications and objectives from a technology perspective.

III – Learning Objectives
1. Develop an understanding of the basics of directed energy lasers and microwaves.
2. Become knowledgeable of related policy issues.
3. Become knowledgeable of the global perspective on directed energy.
4. Forecast future global technological challenges in light of recent developments and security threats.

IV – Course Delivery
This course will be delivered on line (distance learning) giving the students flexibility and ability to complete their academic work solely on line. Course materials, such as reading assignments, power point presentations, video links, etc. will be available online. There is one required text for the course. Students are required to read the materials and to discuss with other students and the instructor the materials, including research that the students have undertaken as part of the requirements. There will be a 2½ day workshop on October 12-14, 2017 **to be held jointly** with ECE 595 Section 003, *Introduction to Cybersecurity*. Students from both classes are welcome to attend this in person in ECE 210, or participate via streaming internet (more on this later).

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V – Evaluation Procedures

a) **Assignments/Discussions/Deliverables:** Students will be asked to engage in a discussion weekly (using the Discussion Tool in Blackboard) with other students and the faculty on a number of questions based on the reading assignment and the link between the materials and security. Some of the questions posed for discussion may require the students to engage on additional research beyond their course's reading assignment. These discussions are part of the overall grade of the course and will account for 50% of students' overall grade. The Discussions will be graded based on the depth of the arguments presented by the discussion.

b) **Research Project**: Students will be required to work on a 25-page research project, on a topic previously approved by your instructor. In the interest of providing more benefits to every student (from their work but also from attending presentations by other students), the instructors will approve on a first-come first-serve basis a different technology area for each student. This way, a student will work on one technology area but listen to final presentations and engage in discussions in multiple areas. This research project will account for the remaining 50% of the student's final grade. The paper is due on the last week of class and will be presented by the student at the end of the course on October 12-14, 2017.
   Project Description: A critical success factor continues to be the ability to write clearly, concisely, and creatively. The goal of this research project is to examine the impact of directed energy on national security. Each student will work on a different technology area that is of importance to national security and examine it in the global context. We are competing and collaborating with many other countries/regions in the world on many fronts. Your project should also consider likely global scenario changes in the next 20-25 years.

c) **Research Paper Guidelines**: Times New Roman style 12 – point font, double-spaced, references should follow the Chicago Style guidelines:
   http://www.chicagomanualofstyle.org/tools_citationguide.html

d) **Grading Procedure**: Grading procedure will be based on the following criteria: a) Does the weekly discussion and the research upon which it is based have a clear, and creative core argument? b) Is that core argument well-supported? c) Is it well-written? And d) Can we draw policy implications from it?

e) **Grading Scale**: Your final grade will be a combination of the points assigned to the Discussions (50 points) and your research paper project (50 points)

The scale used is as follows: A+ (95 -100 points average); A (90-94 points average);
B+ (85-89 points average); B (80-84 points average); C+ (75-79 points average); C (70-74 points average);
D (69-60 points average).

Honor Code: UNM formally recognizes the responsibility of our students and professors to behave in an ethical manner.

Netiquette
- *"In following with the UNM Student Handbook, all students will show respect to their fellow students and instructor when interacting in this course. Take Netiquette suggestions seriously. Flaming is considered a serious violation and will be dealt with promptly. Postings that do not reflect respect will be taken down immediately." (Rebecca Adams, OLIT 535)*
- *"This course encourages different perspectives related to such factors as gender, race, nationality, ethnicity, sexual orientation, religion, and other relevant cultural identities. The course seeks to foster understanding and inclusiveness related to such diverse perspectives and ways of communicating."*
- *Link to Netiquette document:* http://online.unm.edu/help/learn/students/pdf/discussion-

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netiquette.pdf

Copyright Issues
All materials in this course fall under copyright laws and should not be downloaded, distributed, or used by students for any purpose outside this course.

Accessibility
The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. If you have a disability requiring accommodation, please contact the UNM Accessibility Resource Center in 2021 Mesa Vista Hall at 277-3506 or http://as2.unm.edu/index.html. Information about your disability is confidential.
• Blackboard's Accessibility statement: http://www.blackboard.com/accessibility.aspx
• *Include links to accessibility statements for all other technologies included in the course.*

Academic Misconduct
You should be familiar with UNM's Policy on Academic Dishonesty and the Student Code of Conduct (http://pathfinder.unm.edu/campus-policies/other-campus-policies.html) which outline academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act.

Example Drop Policy:
This section states your departmental policy for dropping students.

UNM Policies: This course falls under all UNM policies for last day to drop courses, etc. Please see http://www.unm.edu/studentinfo.html or the UNM Course Catalog for information on UNM services and policies. Please see the UNM academic calendar for course dates, the last day to drop courses without penalty, and for financial disenrollment dates.

VI - Technical Skills

In order to participate and succeed in this class, you will need to be able to perform the following basic technical tasks:

Use UNM Learn (help documentation located in "How to Use Learn" link on left course menu, and also at http://online.unm.edu/help/learn/students/)

Use email – including attaching files, opening files, downloading attachments
Copy and paste within applications including Microsoft Office
Open a hyperlink (click on a hyperlink to get to a website or online resource)
Use Microsoft Office applications
o Create, download, update, save and upload MS Word documents
o Create, download, update, save and upload MS PowerPoint presentations
o Create, download, update, save and upload MS Excel spreadsheets
o Download, annotate, save and upload PDF files
Use the in-course web conferencing tool (Collaborate Web Conferencing software)
Download and install an application or plug in – required for participating in web conferencing sessions

Technical Requirements
Computer

A high-speed Internet connection is highly recommended.

Supported browsers include: Internet Explorer, Firefox, Chrome, and Safari. Detailed Supported Browsers and Operating Systems: http://online.unm.edu/help/learn/students/.

Any computer capable of running a recently updated web browser should be sufficient to access your online course. However, bear in mind that processor speed, amount of RAM and Internet connection speed can **greatly** affect performance. Many locations offer free high-speed Internet access including UNM's Computer Pods.

For using the Kaltura Media Tools inside Learn, be sure you have downloaded and installed the latest version of Java, Flash, and Mozilla Firefox. They may not come preloaded.

Microsoft Office products are available free for all UNM students (more information on the UNM IT Software Distribution and Downloads page: http://it.unm.edu/software/index.html).

For UNM Learn Technical Support: (505) 277-0857 (24/7) or use the "Create a Support Ticket" link in your course.

VII - **Reading List Content:** Readings for this course come from a variety of sources**.**

Required Textbook: P.E. Nielsen, *Effects of Directed Energy Weapons* (CreateSpace Independent Publishing Platform, an Amazon Company, Seattle, WA, 2012) available at the UNM Bookstore or from Amazon.com (https://www.amazon.com/Effects-Directed-Energy-Weapons-Nielsen/dp/1478268573/ref=sr_1_1?s=books&ie=UTF8&qid=1484425668&sr=1-1&keywords=effects+of+directed+energy+weapons). Additional readings will be provided in the on-line folders.

VIII - 2½ Day Workshop

Our meetings on October 12, 13, and 14 will explore all areas that we have developed in class. In these days, we will conduct the instructor feedback as well as the wrap-up for the course and presentations of the final projects for each student. This will be held jointly with the *Introduction to Cybersecurity* course.

<div align="center">

DRAFT SYLLABUS[1]

</div>

Week 1 – August 21, 2017
Nielsen Chapter 1 – Basic Principles – supplemented by readings in the Week 1 Folder; participate in the weekly discussion
Week 2 – August 28, 2017
Nielsen Chapter 3 – Laser Fundamentals (pp. 81-141) – supplemented by readings in the Week 2 Folder; participate in the weekly discussion
Week 3 – September 04, 2017
Nielsen Chapter 3 – Laser Fundamentals (pp. 142-205) – supplemented by readings in the Week 3 Folder; participate in the weekly discussion

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[1] Subject to updates and based on enrollment

Week 4 – September 11, 2017
Nielsen Chapter 4 – Microwaves – supplemented by readings in the Week 4 Folder; participate in the weekly discussion; submit proposal for final project

Week 5 – September 18, 2017
Directed energy laser efficacy, applications, ethics and policy issues – readings in the Week 5 Folder; participate in the weekly discussion; review feedback on proposal for final project

Week 6 – September 25, 2017
Directed energy microwave efficacy, applications, ethics and policy issues – readings in the Week 6 Folder; participate in the weekly discussion; work on final project

Week 7 – October 02, 2017
Global and geopolitical perspective on directed energy – readings in the Week 7 Folder; participate in the weekly discussion; work on final project

Week 8 – October 09, 2017
What are the barriers to the deployment of directed energy? – readings in the Week 8 Folder; participate in the weekly discussion; complete final project paper and prepare presentation [additional instructions on this will be conveyed to the students in the second week of the course]; **October 12, 13, and 14 –** joint workshop with *Introduction to Cybersecurity*

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INTRODUCTION TO DIRECTED ENERGY
A UNM Global and National Security Policy Institute Online Course
ECE 595 Section 010
January 16 – March 11, 2017

Professor: Edl Schamiloglu, Distinguished Professor of Electrical and Computer Engineering
Website: http://ece-research.unm.edu/schamiloglu/
Office: 323C ECE Building
Phone: 505-277-4423
E-mail: edls@unm.edu

I - Course Description
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As directed energy technology transitions from the laboratory to the field, there will be an increasing number of personnel who will be active in the acquisitions process yet have little knowledge about directed energy or related policy issues. This course aims to fill that gap by providing an introduction to directed energy technology for the novice. The target audience includes personnel in acquisitions, those who serve in the military, policymakers, and anyone else interested in learning about the subject.

II - Course Objectives and Methodology
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VIII - 2½ Day Workshop
Our meetings on March 9, 10, and 11 will explore all areas that we have developed in class. In these days, we will conduct the instructor feedback as well as the wrap-up for the course and presentations of the final projects for each student. This will be held jointly with the *Introduction to Cybersecurity* course.

<div align="center">DRAFT SYLLABUS[1]</div>

Week 1 – January 16, 2017
Nielsen Chapter 1 – Basic Principles – supplemented by readings in the Week 1 Folder; participate in the weekly discussion
Week 2 – January 23, 2017
Nielsen Chapter 3 – Laser Fundamentals (pp. 81-141) – supplemented by readings in the Week 2 Folder; participate in the weekly discussion
Week 3 – January 30, 2017
Nielsen Chapter 3 – Laser Fundamentals (pp. 142-205) – supplemented by readings in the Week 3 Folder; participate in the weekly discussion

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[1] Subject to updates and based on enrollment

Week 4 – February 06, 2017
Nielsen Chapter 4 – Microwaves – supplemented by readings in the Week 4 Folder; participate in the weekly discussion; submit proposal for final project
Week 5 – February 13, 2017
Directed energy laser efficacy, applications, ethics and policy issues – readings in the Week 5 Folder; participate in the weekly discussion; review feedback on proposal for final project
Week 6 – February 20, 2017
Directed energy microwave efficacy, applications, ethics and policy issues – readings in the Week 6 Folder; participate in the weekly discussion; work on final project
Week 7 – February 27, 2017
Global and geopolitical perspective on directed energy – readings in the Week 7 Folder; participate in the weekly discussion; work on final project
Week 8 – March 06, 2017
What are the barriers to the deployment of directed energy? – readings in the Week 8 Folder; participate in the weekly discussion; complete final project paper and prepare presentation [additional instructions on this will be conveyed to the students in the second week of the course]; **March 9,10, and 11 –** joint workshop with *Introduction to Cybersecurity*

2.5 Day Workshop March 9-11, 2017, Room ECE 210

Introduction to Cybersecurity has 6 students; Introduction to Directed Energy has 3 students

Thursday March 09, 09:00 AM – Noon; 1:30 – 04:30 PM – Cybersecurity Presentations

Friday March 10, 09:00 AM – Noon – Cybersecurity Presentations

Friday March 10, 1:30 PM – 04:30 PM - Directed Energy Presentations

Saturday March 11, 09:00 – Noon – Directed Energy Presentations

MGT 594-006: U.S.-Latin America: National Security Analysis

Contact Information:

Raul de Gouvea Neto, Department of Finance, International, Technology, and Entrepreneurship (FITE)

Office: ASM 2106
Email: rauldg@unm.edu
Phone: (505) 277-8448

Video Conference: Professor Gouvea is available on skype
Sundays between 20:00-22:00: Skype Address: rauldg777

Course Description and Learning Objectives

This course reviews and assesses the main features, concepts and issues related to the global security environment, paying heed to the U.S.-Latin America dimension. In the process, this course surveys U.S-Latin America security policies and strategies. Students will be exposed to a number of current threats and opportunities facing U.S.'s national security interests in Latin America.

This course is designed to help students develop skillful and articulate responses to diverse sources of information regarding the global security environment. Equally, the aim is to offer the students a broad view of the various decisions, policy challenges, and tasks involved in evaluating, understanding and critically analyzing the global security complex environment. The course intends to provide tools for students to develop their own assessments and evaluations of national security issues related to the U.S.-Latin America dimension.

The primary goal of this course is to introduce students to current challenges in regards to the U.S. national security interests related to Latin America. The course provides an understanding of the world of security in a U.S--Latin America environment. This course encourages students to develop critical thinking in the assessment of broad national security goals and objectives.

Learning Objectives

1. Assess the foundations of U.S.' security policies and explore the implications of such policies to the U.S-Latin America national security interests.
2. Analyze and demonstrate the different dimensions of the U.S.-Latin America security dynamics: economic, social, environmental, political, technological and other factors and variables.
3. Forecast future global security challenges in light of recent developments and security threats.

Assessment and Grading:

Tracking Course Activity:
UNM Learn automatically records all students' activities including: your first and last access to the course, the pages you have accessed, the number of discussion messages you have read and sent, web conferencing, discussion text, and posted discussion topics. This data can be accessed by the instructor to evaluate class participation and to identify students having difficulty.

Weekly Assignments - "Memo Questions:"
Students will be asked to answer weekly "memo questions," based on the reading assignments. There are eight 15 memo questions worth 40 points each, totaling 600 points.

*Each memo question response should be about 4-pages in length, 12-point Roman style font, double-spaced. References should follow Chicago Style Guidelines.

Grade-Weighting:

Global Environment

Activity	Points
Memo 1	40
Memo 2	40
Memo 3	40
Memo 4	40
Memo 5	40
Memo 6	40
Memo 7	40
Memo 8	40
Memo 9	40
Memo 10	40
Memo 11	40
Memo 12	40
Memo 13	40
Memo 14	40
Memo 15	40
Memo Total	600
Final Research Paper	400
Course Total:	1000

Grading-Scale:

Major breaks in the total points will be used to separate the letter grades for the course.

Grade for MGMT 594 will combine the **Memo Total** grade (60% of MGMT 594 grade) with the **Final Research Paper** grade (40% of MGMT 594 grade).

Course Expectations and Class Rules:

Course Expectations:
- *Students are expected to learn how to navigate in Learn*
- *Students are expected to keep abreast of course announcements*
- *Students are expected to use the Learn course email as opposed to a personal email address*
- *Students are expected to keep instructor informed of class related problems, or problems that may prevent the student from full participation*
- *Students are expected to address technical problems immediately*
- *Students are expected to observe course netiquette at all times*

Late Assignments are Not Accepted: If the student needs an extension she/he should contact the instructor ahead of time, so arrangements can be made.

Instructor Drop Policy:
The instructor may drop a student, if the student does not complete assignments on time. Falling behind in one deliverable will mean that you have to work harder to catch up and that puts you at a disadvantage.

This course falls under all UNM policies for the last day to drop courses, etc. Please see http://www.unm.edu/studentinfo.html or the UNM Course Catalog for information on UNM services and policies.   Please see the UNM academic calendar for course dates, the last day to drop courses without penalty, and for financial disenrollment dates.

Recommended Readings for Class Discussion

Recommended Reading for Weekly Class Discussions

    A. **Magazines**: Foreign Policy, The Economist, World Trade, Business Week, Fortune, Latin Trade, Asian Trade, The Wilson Quarterly, Harvard Business Review, International Business, Forbes, Foreign Affairs, The Washington Quarterly.

    B. **Academic Journals:** Journal of Global Security Studies, International Studies Quarterly, Review of International Studies, European Journal of International Relations, International Security, International Studies Quarterly, Review of International Studies, International Security, European Journal of International Security, Thunderbird International Business Review, Latin American Business Review, World Development, Journal of World Business.

    C. **Newspapers**: The Financial Times, The New York Times, Wall Street Journal, Journal of Commerce, The Washington Post, The Guardian, The Moscow Times, China Daily, The Times of India, El Clarin, Estado de Sao Paulo, Reforma, Asahi Shimbun.

    D. **New Media**: Thomas Barnett's blog: http://globlogization.wikistrat.com/weblog/; http://www.foreignpolicy.com; www.stratfor.com;

The instructor will also have other power point presentations and weekly readings that will help students with specific areas of the business plan.

The UNM Learn System will be used for this online course

Technical Skills

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- Open a hyperlink (click on a hyperlink to get to a website or online resource)
- Use Microsoft Office applications
    - Create, download, update, save and upload MS Word documents
    - Create, download, update, save and upload MS PowerPoint presentations
    - Create, download, update, save and upload MS Excel spreadsheets
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- Download and install an application or plug in – required for participating in web conferencing sessions

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Web Conferencing
Web conferencing will be used in this course. For the online sessions, you will need:
- *A USB headset with microphone. Headsets are widely available at stores that sell electronics, at the UNM Bookstore or online.*
- *A high-speed internet connection is highly recommended for these sessions.   A wireless Internet connection may be used if successfully tested for audio quality prior to web conferencing.*
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Online Library Resources
UNM's libraries can be accessed electronically at: http://www.unm.edu/libraries/.

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Copyright Issues

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Academic Integrity
Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. Dishonesty is defined as a lack of truth, honesty or trustworthiness. Cheating is defined as influencing or leading by deceit. Deceit is defined as intending to mislead and commonly suggests a false appearance.

A student will be considered to be dishonest if he or she:
* Misrepresents data, results or sources for papers or reports
* Copies another person's work - plagiarism

The students should also be familiar with UNM's Policy on Academic Dishonesty and the Student Code of Conduct which outline academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act.

Anderson School of Management faculty, staff and students commit to values of trust, honesty, integrity, and accountability. We will not tolerate academic dishonesty. **By enrolling in any course at Anderson, the student accepts the Anderson Academic Honesty Code and affirms the following pledge: I will not lie, cheat, fabricate, plagiarize or use any other dishonest means to gain unfair academic advantage.**

Any violation of the code of conduct will be taken very seriously and appropriate sanctions will be applied. For full text of Anderson's Academic Honesty Code, please visit http://www.mgt.unm.edu/honesty

Netiquette
UNM Netiquette document outlines online behavior. You can access the document at http://online.unm.edu/help/learn/students/pdf/discussion-netiquette.pdf

WEEKLY ASSIGNMENTS – "Memo Question" Guidelines:

Five Major Themes

The course is organized around four major global national security themes:
1. The Impacts of Globalization & De-Globalization Forces on National Security,
2. Economics & National Security,
3. Regional and Global Security Challenges Between the U.S. and Latin America
4. Extra Regional Players in Latin America
5. U.S. and Latin America Security Irritants

Note: Please make sure you read the assigned material before each class.

Theme 1: THE IMPACTS OF GLOBALIZATION & DE-GLOBALIZATION FORCES ON NATIONAL SECURITY

A - Globalization & National Security

1. White House (2015). National Security Strategy.
2. Report Security Conference (2017). The Munich Report. www.reportsecurityconference.de
3. Institute for Economics & Peace (2017). Global Terrorism Index 2016: Measuring and Understanding the Impact of Terrorism. www.economicsandpeace.org
4. Homeland Security Committee (2017). Terror Threat Snapshot. www.homeland.house.gov

Memo question 1: Has Globalization fostered U.S.' national security interests?

B - U.S National Security & Global Risk Management

1. World Economic Forum (2017). The Global Risks Report. Geneva: World Economic Forum. P.1-p. 47. www3.weforum.org.
2. Coats, Daniel R. (2017). Worldwide Threat Assessment of the US Intelligence Community. Washington, D.C: Senate Select Committee on Intelligence. www.dni.gov

Memo Question 2: How is the U.S. addressing and coping with de-globalization forces? How are

these de-globalization forces affecting the U.S.'s main national security interests?

C - Security and Climate Change

1. Department of Defense (2016). Climate Change Adaptation and Resilience. www.defense.gov.

2. Barrett, Oliver-Leighton (2017). "Top Climate Security Implications for Latin America: A Regional Breakdown. www.climateandsecurity.org.

3. American Security Project (2017). The Global Security Defense Index on Climate Change. www.americansecurityproject.org

4. National Intelligence Council (2009). Mexico, The Caribbean, and Central America: The Impact of Climate Change to 2030. www.dni.gov.

Memo Question 3: Is Climate Change rapidly becoming one of U.S.'s main national security threats? What is the role of Latin American countries in the U.S.' climate national security threat?

Theme 2: ECONOMICS & NATIONAL SECURITY

A – Regional & Global Economic Integration

1. Villarreal, M., and Fergusson, I (2017). "The North American Free Trade Agreement (NAFTA)" CRS Report for Congress. Washington, D.C.: CRS. www.fas.org.
2. Gouvea, R.., and Montoya, M. (2014). "Mercosur After Chavez.*" Thunderbird International Business Review,* Feature Article, Vol. 56, No.6, November/December, p.1-13

Memo Question 4: How can regional integration agreement models impact the U.S. and Latin America's national security interests?

B - Economics & National Security

1. American Bar Association (2017). Economics and National Security: Six Questions for the Next Administration. www.americanbar.org.
2. Posen, Adam., and Tarullo, Daniel (2005). Economics and National Security. The Princeton Project on National Security. www.princenton.edu

Memo Question 5: Elaborate on the nexus: economics and national security**.**

Theme 3: REGIONAL AND GLOBAL SECURITY CHALLENGES BETWEEN U.S. AND LATIN AMERICA

A - Addressing Security Challenges & Threats in Latin America

1. Seelke, Clare., and Finklea, Kristin (2016). U.S.-Mexican Security Cooperation: The Merida Initiative and Beyond.CRS Report.www.crs.gov.
2. Gouvea, Raul (2016). Revisiting U.S.-Latin America's Security Relations: Moving Through an Inflection Point? Mimeo. Anderson School of Management. UNM.
3. Berman, Ilan (2014). U.S. Disengagement from Latin America: Compromised Security and Economic Interests. www.ilanberman.com

Memo Question 6: Elaborate on the U.S.' and Latin American countries' main national security threats and opportunities. Elaborate on how the U.S. and Latin American countries can jointly develop a new security agenda for the region.

B - Addressing the U.S-Latin America Defense Architecture

1. Ellis. R.Evan., and Ortiz, Roman (2017). "Why the U.S. Can't Ignore Latin America Security Challenges." *World Policy Review*, March 28.
2. Weisbrot, Mark (2013). Obama's Latin America Policy: Continuity Without Change. Washington, D.C: Center for Economic and Policy Research.
3. Ilan Berman (2014). U.S. Disengagement from Latin America: Compromised Security and Economic Interests. Testimony before the House Foreign Relations Committee. www.ilanberman.com.
4. Gordon, J. (2013). "The Decline of U.S. Influence in Latin America." *Defense Dossier*, December, No.9, pp.3-6.

Memo Question 7: What is the best "strategy" to format and address the U.S.-Latin America defense architecture?

C - The End of the "Hard-Left" Tide in Latin America?

1. Congressional Research Service (2017). "Venezuela: Background and U.S. Policy. CRS Report. Washington, D.C.: Congressional Research Service**.**
2. Sullivan, Mark., and Nelson, Rebecca (2016). "Argentina: Background and U.S. Relations. CRS Report. Washington, D.C: Congressional Research Service
3. Miranda, Myra., and Yang, Seohyeon (2016). "Obama Visit to Cuba: Who Benefits?" www.coha.org**.**
4. Gouvea, R. (2014). Brazil: "The Future Ain't What it Used to Be*." International Journal of Liberal Arts and Social Science, Vol.2, No.3, p.41-50.*

Memo Question 8: What were the "hard left"'s main complaints about the U.S. 'role in Latin America? How will the end of the "hard left" in Latin America affect U.S.'s national security interests in Latin America?

D- Latin America: Main Perceived Security Threats

D.1.Effective Governance

1. Almeida, Monica., and Zagaris, Bruce (2016). "Political Capture in the Petrobras Corruption Scandal: The Sad Tale of an Oil Giant." The Fletcher Forum of World Affairs, Vol.39, No.2, pp.87-99.
2. Carnegie Endowment for International Peace (2014). "Corruption: The Unrecognized Threat to International Security. Working Group on Corruption and Security. Washington, D.C.: Carnegie Endowment for International Peace.
3. Gouvea, R., Kapelianis, D., and Montoya, M. (2014). "The Brazilian Spring: Reconsidering Risk Assessment in Business and the Global Political Economy." *Case Studies in Business and Management,* June, Vol.1, No.1, p.38-63.

   Memo Question 9: Elaborate on the nexus: corruption & national security. What are the main impacts on the U.S.-Latin America agenda?

D.2.Social Justice

1. CEPAL (2016). Latin America is the World's Most Unequal Region. Here How to Fix it**.** Santiago, Chile: CEPAL.

D.3. Illegal Immigration and Citizen Security

1. Cardinal Brown, Theresa., and Mason, Jeff (2017). Immigration Trends and the Immigrant Debate." www.bipartisanpolicy.org.
2. Hanson, Gordon, Liu, Chen., and McIntosh, Craig (2017). "Along the Watchtower: The Rise and Fall of U.S. Low Skilled Immigration.www.brookings.edu.
3. Isaccson, Adam., Meyer, Maureen, and Smith, Hannah (2017). "Mexico's Southern Border." www.wola.org.

   Memo 10: Illegal immigration imposes a number of threats to nations, from social, economic, environmental, to national security. Elaborate on measures and policies to address illegal immigration. What set of policies and measures can the U.S. and Latin American nations devise to lower the national security threat to the U.S.?

D.4. Lawless Regions & Citizen Security

1. Renwick, Danielle (2016). "Central America's Violent Northern Triangle." Council on Foreign Relations. www.cfr.org.
2. Beittel, June (2015). "Mexico: Organized Crime and Drug Trafficking Organizations." CRS Report. Washington, D.C.: Congressional Research Service.
3. Cirino, Julio, Elizondo, Silvana., and Wawro, Geoffrey (2015). "Latin America's Lawless Areas and Failed States and Analysis of New Threats. New Port Papers: Naval War College.
4. Bensman, Todd (2016). How Panama and Mexico Help Potential Terrorists Reach the U.S. Border."
5. Chaves, Reinaldo (2017). "PCC Cria Narcosul para Dominar Trafico Sul- Americano." 17 de Janeiro, www.calle2.com.

Memo Question 11: What role (s) can the U.S. play in order to eliminate these lawless regions'national security threats? How can the U.S. engage Latin American countries in terms of creating higher levels of citizen security in the hemisphere?

D.5.Pandemics

1. Stewart-Ibarra, Anna (2017). Fighting back Against Mosquito-Borne Disease Epidemics in Latin America and the Caribbean. www.researchfeatures.com
2. Rodriguez-Morales, Alfonso., and Sanchez-Duque, Jorge (2017). Preparing for the next arboviral epidemics in Latin America; who can it be now? Mayaro, Oropouche, West Nile or Venezuelan Equine Encephalitis Viruses. www.jprevepi.com
3. EIU (2016). Latin America Healthcare Outlook. www.eiu.com
4. Jonas, Olga (2014). Pandemic Risk. Washington, D.C.: The World Bank. http://un-influenza.org

Memo Question 12: Elaborate on ways to eliminate or manage the pandemic threat.

Theme 4: EXTRA-REGIONAL PLAYERS IN LATIN AMERICA

1. DEA (2016). DEA and European Authorities Uncover Massive Hezbollah Drug and Money Laundering Schemes. www.dea.gov.
2. Mora, Edwin (2014). Narco-Terror Group Hezbollah Operates Across Latin America and U.S.www.breibart.com.
3. Haines, John (2016). Everything Old is New Again: Russia Returns to Nicaragua. www.ethz.ch.
4. Ellis, Evan (2015). The New Russian Engagement with Latin America. www.ssi.armywarcollege.edu.

5. Blank, Stephen (2014). Russia's Goals, Strategy and Tactics in Latin America. www.lacc.fiu.edu.

Memo 13: How can the U.S. lower the Iranian, Russian, and Chinese security threats in Latin America? Propose different scenarios.

Theme 5: U.S. AND LATIN AMERICAN SECURITY IRRITANTS

A - Decreasing U.S.-Latin American Defense Cooperation

1. Parrish, Karen (2017). "Southcom Commander Outlines Latin America Strategy." www.defense.gov.
2. Seelke, Clare., and Finklea, Kristin (2017). U.S.-Mexican Security Cooperation: The Merida Initiative and Beyond**.** CRS Report. Washington, D.C: Congressional Research Service**.**
3. Sullivan, Mark (2016). Latin America and the Caribbean: Key Issues for the 114th Congress. CRS Report. Washington, D.C: Congressional Research Service**.**

Memo 14: Elaborate on ways to increase security cooperation between the U.S. and Latin America.

B - Latin America Defense Procurement

1. SIPRI (2017). Trends in World Military Expenditure, 2016. www.sipri.org.
2. S Gouvea, R. (2016). "The Sinicization of Brazil's Defense Industry." *Journal of Defense Studies and Resource Management*, Vol.4, No.1.
3. Ostrove, Bill (2017). Top Eight Countries Dominate Defense Spending in Latin America. March 20. www.blog.forecastinternational.com.
4. IHS Markit (2016). South American Defense Spending Continues to Decline with Brazil's Latest Cut the Largest in a Decade. www.news.ihsmarkit.com.
5. Peter G. Foundation (2017). U.S. Defense Spending Compared to Other Countries.www.pgpf.org

Memo 15: What are the major reasons why Latin American countries have chosen non-

traditional defense suppliers, such as the U.S.?

MGT 594 section 006: GLOBALIZATION & NATIONAL SECURITY ANALYSIS
MGT 594 section 007: TECHNOLOGY MANAGEMENT AND NATIONAL SECURITY

This module is made up of two 3 semester credit hour courses. The first is on globalization and national security and the second is on technology, its management and national security.

MGT 594, SECTION 006

Professor: Raul de Gouvea Neto
Office: ASM 2106
Phone: 505-277-8448
E-mail: rauldg@unm.edu

MGT 594 section 007

Professor: Sul Kassicieh
Office: ASM 2110
Phone: 505-277-8881
E-mail: sul@unm.edu

This special topics course is a new offering in the new National Security program at UNM. This module (combining the two courses) is the first module in the new program. The module is taught by Professor Raul Gouvea (Globalization) and Professor Sul Kassicieh (Technology Commercialization). This syllabus shows both of these parts that really should be taken as a combined module.

Professors: Raul de Gouvea Neto
Office: ASM 2106
Phone: 505-277-8448
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Sul Kassicieh
Office: ASM 2110
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Course Delivery
This course will be delivered on line (distance learning) giving the students flexibility and ability to complete their academic work solely on line. Course materials, such as reading assignments, power points, exams and assignments, will be available in folders in the virtual classroom. These readings and assignments can be downloaded or accessed on line.

Evaluation Procedures
   a) **"Memo Questions" Weekly Assignments:** Students will be asked to answer "memo questions" weekly, based on the reading assignment. Altogether we have ten (10) memo questions addressing all the topics covered in this course. Memo questions will be assigned 5 points each, totaling 50 points. "Memo question" assignments are due every week. These assignments will

account for 50% of students' overall grade. The length of each weekly assignment will be around 4 pages long, 12-point font, double spaced. References should follow Chicago Style Guidelines.

b) **Joint Research Project**: Students will be required to work on a 25 page research project, on a topic previously approved by your instructors (Raul Gouvea and Sul Kassicieh). This research project will account for the remaining 50% of the student's final grade. The paper is due on the last week of class.

Pointers: A critical success factor continues to be the ability to write clearly, concisely, and creatively. The goal of this joint research project is to examine the impact of globalization forces and technology and its management on a global security context. Each student will work on a different technology area that is of importance to national security and examine it in the global context. We are competing and collaborating with many other countries/regions in the world on many fronts. Pick a major technology area, examine US policy (explicit and implicit) in innovating, researching and developing the technology and how do we compete and collaborate with the rest of the world. How does this technology area affect the future, how well are we doing and what are the major policy and strategic recommendations that you have for the US to do better in this area. Your project should also consider likely global scenario changes in the next 20-25 years.

c) **Research Paper Guidelines**: Roman style 12 – point font, double spaced, references should follow the Chicago Style guidelines.

d) **Late Assignments**: If the student needs an extension she/he should contact the instructor ahead of time, so arrangements can be pursued.

e) **Grading Procedure**: Grading procedure will be based on the following criteria: a) Does the weekly assignment and research project have a clear, and creative core argument? b) Is that core argument well supported? c) Is it well written? And d) Can we draw policy implications from it?

f) **Grading Scale**: Your final grade will be a combination of your ten memo questions points (50 points) and your research paper project (50 points) A+ (95 -100 points average); A (90-94 points average); B+ (85-89 points average); B (80-84 points average); C+ (75-79 points average); C (70-74 points average); D (69-60 points average).

g) **Instructor Response Time:** *You can anticipate a 24 to 48 hour response from me, Monday – Thursday. I will try and respond to all weekend (Friday afternoon to Sunday) emails and postings by noon on Monday or earlier.*

h) **Expectations for Participation**

- *students are expected to learn how to navigate in Learn*
- *students are expected to keep abreast of course announcements*
- *students are expected to use the Learn course email as opposed to a personal email address*
- *students are expected to keep instructor informed of class related problems, or problems that may prevent the student from full participation*
- *students are expected to address technical problems immediately*
- *students are expected to observe course netiquette at all times*

Disabilities Statement: If you are qualified person with disabilities who might need specific accommodations in an academic setting, please communicate with me as soon as possible so that we may make appropriate arrangements to meet your needs. Frequently, we will need to coordinate accommodating activities with other offices on campus.

Honor Code: UNM formally recognizes the responsibility of our students and professors to behave in an ethical manner.

Netiquette

- *"In following with the UNM Student Handbook, all students will show respect to their fellow students and instructor when interacting in this course. Take Netiquette suggestions seriously. Flaming is considered a serious violation and will be dealt with promptly. Postings that do not reflect respect will be taken down immediately." (Rebecca Adams, OLIT 535)*
- *"This course encourages different perspectives related to such factors as gender, race, nationality, ethnicity, sexual orientation, religion, and other relevant cultural identities. The course seeks to foster understanding and inclusiveness related to such diverse perspectives and ways of communicating."*
- *Link to Netiquette document:* http://online.unm.edu/help/learn/students/pdf/discussion-netiquette.pdf

V - Technical Skills

In order to participate and succeed in this class, you will need to be able to perform the following basic technical tasks:

Use UNM Learn (help documentation located in "How to Use Learn" link on left course menu, and also at http://online.unm.edu/help/learn/students/)

- Use email – including attaching files, opening files, downloading attachments
- Copy and paste within applications including Microsoft Office
- Open a hyperlink (click on a hyperlink to get to a website or online resource)
- Use Microsoft Office applications
  - o Create, download, update, save and upload MS Word documents
  - o Create, download, update, save and upload MS PowerPoint presentations
  - o Create, download, update, save and upload MS Excel spreadsheets
  - o Download, annotate, save and upload PDF files
- Use the in-course web conferencing tool (Collaborate Web Conferencing software)
- Download and install an application or plug in – required for participating in web conferencing sessions

Technical Requirements

Computer
- A high speed Internet connection is highly recommended.
- Supported browsers include: Internet Explorer, Firefox, and Safari. Detailed Supported Browsers and Operating Systems: http://online.unm.edu/help/learn/students/
- Any computer capable of running a recently updated web browser should be sufficient to access your online course. However, bear in mind that processor speed, amount of RAM and Internet connection speed can **greatly** affect performance. Many locations offer free high-speed Internet access including UNM's Computer Pods.
- For using the Kaltura Media Tools inside Learn, be sure you have downloaded and installed the latest version of Java, Flash, and Mozilla Firefox. They may not come preloaded.
- Microsoft Office products are available free for all UNM students (more information on the UNM IT Software Distribution and Downloads page: http://it.unm.edu/software/index.html)

For UNM Learn Technical Support: (505) 277-0857 (24/7) or use the "Create a Support Ticket" link in your course.

Web Conferencing
Web conferencing will be used in this course during the following times and dates:
For the online sessions, you will need:
- *A USB headset with microphone. Headsets are widely available at stores that sell electronics, at the UNM Bookstore or online.*
- *A high-speed internet connection is highly recommended for these sessions.   A wireless Internet connection may be used if successfully tested for audio quality prior to web conferencing.*
         For UNM Web Conference Technical Help: (505) 277-0857

VI. - Recommended Reading for Class Discussion
   A. **Magazines**: Foreign Policy, The Economist, World Trade, Business Week, Fortune, Latin Trade, Asian Trade, The Wilson Quarterly, Harvard Business Review, International Business, Forbes, Foreign Affairs, The Washington Quarterly.
   B. **Academic Journals:** Journal of Global Security Studies, International Studies Quarterly, Review of International Studies, European Journal of International Relations, International Security, International Studies Quarterly, Review of International Studies, International Security, European Journal of International Security, Thunderbird International Business Review, Latin American Business Review, World Development, Journal of World Business.
   C. **Newspapers**: The Financial Times, The New York Times, Wall Street Journal, Journal of Commerce, The Washington Post, The Guardian, The Moscow Times, China Daily, The Times of India, El Clarin, Estado de Sao Paulo, Reforma, Asahi Shimbun.
   D. **New Media**: Thomas Barnett's blog: http://globlogization.wikistrat.com/weblog/; http://www.foreignpolicy.com; www.stratfor.com;

Tracking Course Activity
UNM Learn automatically records all students' activities including: your first and last access to the course, the pages you have accessed, the number of discussion messages you have read and sent, web conferencing, discussion text, and posted discussion topics. This data can be accessed by the instructor to evaluate class participation and to identify students having difficulty.

Globalization and National Security

Course Description:
This course reviews and assesses the main features, concepts and issues related to the global security environment. In the process, this course surveys global security policies and strategies. Students will be exposed to a number of current threats and opportunities facing U.S's national security interests.
 This course is designed to help the student develop skillful and articulate responses to diverse sources of information regarding the global security environment. Equally, the aim is to offer the students a broad view of the various decisions, policy challenges, and tasks involved in evaluating, understanding and critically analyzing the global security complex environment. At the end, the course intends to provide the tools for the students to develop their own assessments and evaluation of national security issues.

Course Objectives and Methodology
The primary goal of this course is to introduce the student to current global challenges to the U.S. national security interests. The course provides a degree of understanding of the world of security in a

global setting. Along these lines, this course will provide an overview of global broad national security issues. This course will encourage students to develop critical thinking in the assessment of broad national security goals and objectives.

Learning Objectives
1. Assess the foundations of global security policies and explore the implications of such policies to the U.S.' national security interests.
2. Analyze and demonstrate the different dimensions of global security: economic, social, environmental, political, technological and other factors and variables.
3. Forecast future global security challenges in light of recent developments and security threats.

Technology Management and National Security

Course Description:
This course reviews and assesses the main features, concepts and issues related to the global security environment from the technology management perspective. Technology is managed for economic reasons and the economy affects our ability to spend on security. Technology also is important in its development and usage where use for commercial purposes and for security purposes often coincide and overlap. In the process, this course will survey technology as a driver of economic development which allows countries to have the economic power to build an infrastructure of security. It also covers the use of science and technology in the national security activities as well as the links between the two. Students will examine a number of current threats and opportunities facing the U.S. and its national security interests.
 This course is designed to help the student develop skillful and articulate analyses to the interaction between technology and national security. Equally, the aim is to offer the students a broad view of the various decisions, policy challenges, and tasks involved in evaluating, understanding and critically analyzing this link. At the end, the course intends to provide the tools for the students to develop their own assessments and evaluation of technology and national security issues.

Course Objectives and Methodology
The primary goal of this course is to introduce the student to the policy considerations that we face as we make decisions on the funding, nurturing and deployment of technology. Analyzing the impact of these actions on current security global challenges and the U.S. national security interests is the core issue of the course. The course provides a degree of understanding of the world of security in a global setting. Along these lines, this course will provide an overview of technology, its sources and uses, how it is commercialized and the link between commercial activities and security. This course will encourage students to develop critical thinking in the assessment of broad national security goals and objectives from a technology economic perspective.

Learning Objectives
1. Assess the sources of technology and innovation in the country and how they provide the basis for economic security
2. Examine the enterprise of technology and innovation and its link to economic development and security as well as national security
3. Analyze the link between global security: economic, social, environmental, political, technological and other factors and variables.
4. Forecast future global technological challenges in light of recent developments and security threats.

Globalization and National Security

VII – **Four Major Themes** - The course is organized around four major global national security themes:
1. The Impacts of Globalization & De-Globalization Forces on National Security,
2. Economics & National Security,
3. Regional and Global Security Challenges
 4. Future Trends for Global Security
 Note: Please make sure you read the assigned material before each class.
THEME 1: THE IMPACTS OF GLOBALIZATION & DE-GLOBALIZATION FORCES ON NATIONAL SECURITY

A-Globalization
1. White House (2015). National Security Strategy.
2. Report Security Conference (2016). The Munich Report. www.reportsecurityconference.de
3. McKinsey & Company (2016). Digital Globalization: The Era of Global Flows. www.McKinsey.com
4. Deloitte University Press (2014). Navigating the Next Wave of Globalization. Pages: Preface-page 47. **http://d2mtr37y39tpbu.cloudfront.net**
5. Ernest & Young (2013). Looking Beyond the Obvious: Globalization and New Opportunities for Growth. www.ey.com

Memo question: Has Globalization increased or decreased nation's national security interests?
B-Global Risk Management

1. World Economic Forum (2016). The Global Risks Report. Geneva: World Economic Forum. P.1-p. 47. www3.weforum.org.
2. Clapper, J. (2016). Worldwide Threat Assessment of the US Intelligence Community. Washington, D.C: Senate Select Committee on Intelligence. www.dni.gov
3. Jonas, Olga (2014). Pandemic Risk. Washington, D.C.: The World Bank. http://un-influenza.org

Memo Question: How is the U.S. addressing and coping with de-globalization forces? How are these de-globalization forces affecting the U.S.'s main national security interests?
C-Security and Climate Change

1. Department of Defense (2016). Climate Change Adaptation and Resilience. www.defense.gov.
2. UNSDSN (2015). Key Elements for Success on Climate Change Mitigation at COP21 in Paris. www.unsdsn.org
3. White House (2015). President Obama's Climate Action Plan. www.whitehouse.gov.
4. Department of Defense (2015). National Security Implications of Climate-Related Risks and Changing Climate.www.defense.gov.
5. IPCC (2015). Climate Change 2014 Synthesis Report – Summary for Policymakers. www.ipcc.ch
6. Zuckerman, Julia et al. (2016). Investing at Least 1 Trillion Dollars a Year on Clean Energy. The Global Commission on the Economy and Climate. www.newclimateeconomy.report

Memo Question: Is Climate Change rapidly becoming the U.S.'s main national security threat?

THEME 2: ECONOMICS & NATIONAL SECURITY

A– Regional & Global Economic Integration

       1.Villarreal, M., and Fergusson, I (2015). "The North American Free Trade Agreement (NAFTA)" CRS Report for Congress. Washington, D.C.: CRS. www.fas.org.

       2.Brock, William et al. (2016). The Trans-Pacific Partnership: Strategic Implications. CRS Report. www.crs.gov.

Memo Question: How can regional integration models impact the U.S.' national security interests?

B-Economics & National Security

1. Aleksashenko, S. (2015). BRICS: Dead or Alive?" www.globalinterest.org
2. PWC Economics (2013). World in 2050. The BRICs and Beyond: Prospects, Challenges and Opportunities. www.pwc.co.uk
3. Reprisk (2014). Special Report on MINT Countries. www.resprisk.com
4. Porter, M., and Rivkin, J. (2012). Prosperity at Risk: Findings of Harvard Business School's Survey on U.S. Competitiveness. Harvard: Harvard Business School. www.dev.create.org
     5.Posen, Adam., and Tarullo, Daniel (2005). Economics and National Security. The Princeton Project on National Security. www.princenton.edu

Memo Question: Elaborate on the nexus: economics and national security

THEME 3: REGIONAL AND GLOBAL SECURITY CHALLENGES

   A- Addressing Security Challenges & Threats in Latin America

1. Seelke, Clare., and Finklea, Kristin (2016). U.S.-Mexican Security Cooperation: The Merida Initiative and Beyond.CRS Report.www.crs.gov.
2. Gouvea, Raul (2016). Revisiting U.S.-Latin America's Security Relations: Moving Through an Inflection Point? Mimeo. Anderson School of Management. UNM.
3. Berman, Ilan (2014). U.S. Disengagement from Latin America: Compromised Security and Economic Interests. www.ilanberman.com

Memo Question: Elaborate on the U.S.' and Latin American countries main national security threats and opportunities. Elaborate on how the U.S. and Latin American countries can jointly develop a new security agenda for the region.

 B- Addressing Security Challenges & Threats in the Middle East
1. Cordesman, Anthony (2016). Risks and Instability in the Middle East and North Africa in 2016. www.csis.org
2. Blanchard, Christopher., and Humud, Carla (2016). The Islamic State and U.S. Policy. CRS Report. http://fas.org
3. Einhorn, Robert., and Nephew, Richard (2016). The Iran Nuclear Deal: Prelude to Proliferation in the Middle East? www.brookings.edu.

Memo Question: How can Middle East nations improve on their own national security strategies? Is there a role for the U.S. to play?

 C- Addressing Security Threats and Challenges in Asia
1. Lopour, Jacqueline (2015). Geopolitics at the World's Pivot: Exploring Central Asia's Security Challenges. CIGI Papers No.80. www.cionline.org

2. UNODC (2016). Protecting Peace and Prosperity in Southeast Asia: Synchronizing Economic and Security Agendas. www.unodc.org
3. Department of Defense (2016). Asia-Pacific Maritime Security Strategy. www.defense.gov.
4. Chanlett-Avery, Emma., Rinehart, Ian., and Nikitin, Mary (2016). North Korea: U.S. Relations, Nuclear Diplomacy and Internal Situation. CRS Report.
5. Brookings India (2016). India – U.S. Relations in Transition. www.brookings.in.
Memo Question: Is the U.S. playing their security cards right in Asia?
D-U.S.-China Security Threats, Promises, and Challenges
1. Department of Defense (2016). Military and Security Developments Involving the People's Republic of China 2016. Annual Report to Congress.
2. Bader, Jeffrey (2016). A Framework for U.S. Policy Towards China. Brookings. www.brookings.edu
3. Bergerson, Kristien (2016). China's Efforts to Counter U.S. Forward Presence in the Asia Pacific. Economic and Security Review Commission. www.uscc.gov.
4. Kulacki, Gregory (2016). The Risk of Nuclear War with China: A Troubling Lack of Urgency. www.ucsusa.org
Memo Question: Will the U.S. and China be able to jointly formulate a global national security strategy that can also address their own national and regional global security agenda

THEME 4: FUTURE TRENDS FOR GLOBAL SECURITY
A- Global Terrorism: Hybrid & Asymmetric Threats

1. Global Broking Centre (2016). 2016 Terrorism and Political Violence Map. www.aon.com
2. Gunaratna, Rohan (2016). Forecast 2016: IS as a Networked Globalized Threat. www.rsis.edu.sg.
3. Palombi, Simon., and Gomis, Benoit (2016). Lone-Actor Terrorism: Attack Methodology and Logistics. www.strategicdialogue.org
4. Institute for Economics & Peace (2016). Global Terrorism Index 2015: Measuring and Understanding the Impact of Terrorism. www.economicsandpeace.org
5. Homeland Security Committee (2016). Terror Threat Snapshot. www.homeland.house.gov

B- Future Trends for Global Security: A New Paradigm of Security?
1. Cohen, Craig., and Dalton, Melissa (2016). Global Forecast. https://csis-prods3amazonws.com
2. UK (2014). Global Strategic Trends out to 2045. Ministry of Defense. www.gov.uk.
3. National Intelligence Council (2012). Global Trends 2030: Alternative World's. www.dni.gov/nic/globaltrends.

Memo Question: Elaborate on future national security scenarios for the global economy.

Technology Management and National Security

    A. Technology Management Principles

Book: Melissa Schilling, *Strategic Management of Technological Innovation*, 5th Edition, N.Y: McGraw Hill.

Chapter 1   Introduction

Chapter 2   Sources of Innovation

Chapter 3   Types and Patterns of Innovation

Chapter 5   Timing of Entry

Chapter 6   Defining the Organization's Strategic Direction

Chapter 7   Choosing Innovation Projects

Chapter 8   Collaboration Strategies

Chapter 9   Protecting Innovation

Chapter 10   Organizing for Innovation

Assignment:
Policy plays a major part to support small and large enterprises in their endeavor to use technology to further the economic well being of the nation as it competes in the world economy. How does technology management contribute to the economic security of the US?   What part does competition play and is there a link between economic security and national security? Elaborate on that link

    B. Technology, Economic Development and Entrepreneurship

Readings
1. Acs Z, Åstebro T, Audretsch D, Robinson D. Public policy to promote entrepreneurship: a call to arms. *Small Business Economics*. June 2016;47(1):35-51
2. Acs Z, Audretsch D, Braunerhjelm P, Carlsson B. Growth and entrepreneurship. *Small Business Economics*. September 2012;39(2):289-300.
3. Ács Z, Autio E, Szerb L. National Systems of Entrepreneurship: Measurement issues and policy implications. *Research Policy*. April 2014;43(3):476-494.
4. Acs Z, Desai S, Hessels J. Entrepreneurship, economic development and institutions. *Small Business Economics*. October 2008;31(3):219-234
5. Acs Z, Szerb L. Entrepreneurship, Economic Growth and Public Policy. *Small Business Economics* [serial online]. March 2007;28(2/3):109-122.
6. Carlsson B, Acs Z, Audretsch D, Braunerhjelm P. Knowledge creation, entrepreneurship, and economic growth: a historical review. *Industrial & Corporate Change*. December 2009;18(6):1193-1229.

7. Malecki E. Global Knowledge and Creativity: New Challenges for Firms and Regions. *Regional Studies* October 2010; 44(8):1033-1052.
8. Malecki, E. Jockeying for Position: What It Means and Why It Matters to Regional Development Policy When Places Compete. *Regional Studies*. 38, 9, 1101-1120, Dec. 2004.

Assignment:
Economic growth, entrepreneurship and knowledge creation affect a country's future. What are some of the strengths and weaknesses of the US economy vis-à-vis the rest of the world in this area?

C. US Technology Policy

6. Patricia K. Falcone, Office of Science abd Technology Policy, The White House. Science, Technology and Innovation for Maerica;s National Security: power point presentation
7. Science Report Security Conference (2016). The Munich Report. www.reportsecurityconference.de
8. Deloitte University Press (2014). Navigating the Next Wave of Globalization. Pages: Preface-page 47**. http://d2mtr37y39tpbu.cloudfront.net**
9. Ernest & Young (2013). Looking Beyond the Obvious: Globalization and New Opportunities for Growth. www.ey.com
10. White House (2015). National Security Strategy.
11. National Science and Technology Council (2016). A 21st Century Science, Technology and Innovation Strategy for America's National Security. www.defenseinnovationmarketplace.mil.
12. Dutta, Soumitra., and Lanvin, Bruno (2014). The Global Innovation Index 2015. Geneva: WIPO, . www.globalinnovationindex.org
13. Battelle (2015). 2015 Global R&D Funding Forecast. www.battelle.org
14. James Kadtke and Lintion Wells II, Policy Challenges of Accelerating Technological Change: Security Policy and Strategy Implications of Parallel Scientific Revolutions," Center for Technology and National Security Policy, National Defense University, 1-68, 2014.
15. Elihu Zimet, Robert Armstrong, Donald Daniel and Joseph Mait, Technology, Transformation and New Operational Concepts," Defense Horizons, Number 31, 18, -2003
16. Gerald Borsuk and Timothy Coffey, "Moore's Law: A department of Defense Perspective," Defense Horizons, number 30, 1-8, 2003.

Assignment: critique US Technology policy? What are the positive aspects and what are some of the problems that ut can create? Build a case for your analysis and recommendations

D. Investments, Trade, Security, Technology and Innovation

4. Baban Hasnat, "US national Security and Foreign Direct Investment", Thunderbird International Business Review, 57:3, 185
5. Vincenzo Bove, Leandro Elia and Petros G. Sekeris, "US Security Strategy and the Gains from Bilateral Trade", Review of International Economics, 22:5, 863-885, 2014.
6. World Economic Forum (2016). The Global Risks Report. Geneva: World Economic Forum. P.1-p. 47. www3.weforum.org.
7. Trustwave (2016). 2016 Trustwave Global Security Report. www2.trustwave.com.
8. Clapper, J. (2016). Worldwide Threat Assessment of the US Intelligence Community. Washington, D.C: Senate Select Committee on Intelligence. www.dni.gov
9. National Science and Technology Council (2016). A 21st Century Science, Technology and Innovation Strategy for America's National Security.

www.defenseinnovationmarketplace.mil.

10. Schwab, K., and Sala-i-Martin, X. (2015). The Global Competitiveness Report 2015-2016, Part 1. Geneva: World Economic Forum, p.1-46. www.weforum.org
11. Dutta, Soumitra., and Lanvin, Bruno (2014). The Global Innovation Index 2015. Geneva: WIPO, . www.globalinnovationindex.org

Assignment: How do R&D, technology, innovation, investments and trade affect the future of the country and its security?

Face-to-Face Meetings

October 27, 28 and 29, 2016
Oct 27: 9:00-17:00 Lectures by Professor Raul Gouvea and by Professor Sul Kassicieh
Oct 28: 9:00-17:00 Lectures by Professor Raul Gouvea and by Professor Sul Kassicieh
Oct 29: 9:00-12:00 Students Project Presentations

TECHNOLOGY AND INNOVATION IN NATIONAL SECURITY

MGT 594 section 007

Professor: Sul Kassicieh
Office: ASM 2110
Phone: 505-277-8881
E-mail: sul@unm.edu

I - **Course Description:**

This course introduces the link among innovation, technology, economic development, entrepreneurial activities, economic and national security. Innovation and technology are managed for economic reasons but the links to national security are essential for a country's ability to thrive. Our ability to utilize resources to effect security is clear but how does one design policies that can achieve these seemingly distinct goals.   There are areas of technology that are essential for security such as cyber security but they can also be used to secure commercial and financial systems so the link gets stronger as spillover effects takes place. Other considerations include the ability to innovate for commercial and security purposes. Can one do one without the other and how is manufacturing affected when one favors one commercial use as opposed to security use.   The questions and linkages are many.

The course will survey technology as a driver of economic development which allows countries to have the economic power to build an infrastructure of security. It also covers the use of science and technology in the national security activities as well as the links between the two. Students will examine a number of technology areas that are essential for economic and national security.

 This course is designed to help the student develop skillful and articulate analyses to the interaction between technology and national security. Equally, the aim is to offer the students a broad view of the various decisions, policy challenges, and tasks involved in evaluating, understanding and critically analyzing this link. At the end, the course intends to provide the tools for the students to develop their own assessments and evaluation of technology and national security issues.

II - **Course Objectives and Methodology**

The primary goal of this course is to introduce the student to the policy considerations that we face as we make decisions on the funding, nurturing and deployment of technology. Analyzing the impact of these actions on current security global challenges and the U.S. national security interests is the core issue of the course. The course provides a degree of understanding of the world of economic development, technology use, entrepreneurship and their link to security in a global setting. Along these lines, this course will provide an overview of technology, its sources and uses, how it is commercialized and the link between commercial activities and security. This course will encourage students to develop critical thinking in the assessment of broad national security goals and objectives from a technology economic perspective.

III – Learning Objectives

1. Define innovation and technology management by examining the sources of technology and

innovation in the country and how they link to economic well-being and ultimately provide the resources and capabilities for security.

2. Examine the enterprise of technology and innovation and its link to economic development and security as well as national security

3. Analyze the link between global security: economic, social, environmental, political, technological and other factors and variables.

4. Forecast future global technological challenges in light of recent developments and security threats.

IV – Course Delivery

This course will be delivered on line (distance learning) giving the students flexibility and ability to complete their academic work solely on line. Course materials, such as reading assignments, power point presentations, assignments and projects will be available on online. Students are required to read the materials and to discuss with other students and the instructor the materials including research that the students have undertaken as part of the requirements.

V – Evaluation Procedures

a) **Assignments/Discussions/Deliverables that coincide with the 4 parts of the course:** Students will be asked to engage in a discussion with other students and the faculty on a number of questions based on the reading assignment and the link between the materials and security. Some of the questions posed for discussion may require the students to engage on additional research beyond their course's reading assignment. These discussions are part of the overall grade of the course. These assignments will account for 50% of students' overall grade. The assignments will be graded based on the depth of the arguments presented by the discussion.

b) **Research Project**: Students will be required to work on a 25-page research project, on a topic previously approved by your instructor. In the interest of providing more benefits to every student (from their work but also from attending presentations by other students), the instructors will approve on a first-come first-serve basis a different technology area for each student. This way, a student will work on one technology area but listen to final presentation and engage in discussions on multiple areas.
This research project will account for the remaining 50% of the student's final grade. The paper is due on the last week of class and will be presented by the student at the end of the course during the face-to-face meetings of October 27-29.
Project Decryption: A critical success factor continues to be the ability to write clearly, concisely, and creatively. The goal of this joint research project is to examine the impact of globalization forces and technology and its management on a global security context. Each student will work on a different technology area that is of importance to national security and examine it in the global context. We are competing and collaborating with many other countries/regions in the world on many fronts. Pick a major technology area, examine US policy (explicit and implicit) in innovating, researching and developing the technology and how do we compete and collaborate with the rest of the world.   How does this technology area affect the future, how well are we doing and what are the major policy and strategic recommendations that you have for the US to do better in this area? Your project should also consider likely global scenario changes in the next 20-25 years.

c) **Research Paper Guidelines**: Roman style 12 – point font, double spaced, references should follow the Chicago Style guidelines.
d) **Grading Procedure**: Grading procedure will be based on the following criteria: a) Does the weekly discussion and the research upon which it is based have a clear, and creative core argument? b) Is that core argument well supported? c) Is it well written? And d) Can we draw policy implications from it?
e) **Grading Scale**: Your final grade will be a combination of the points assigned to the assignments (50 points) and your research paper project (50 points)

The scale used is as follows:
A+ (95 -100 points average);
A (90-94 points average);
B+ (85-89 points average);
B (80-84 points average);
C+ (75-79 points average);
C (70-74 points average);
D (69-60 points average).

Honor Code: UNM formally recognizes the responsibility of our students and professors to behave in an ethical manner.

Netiquette

- *"In following with the UNM Student Handbook, all students will show respect to their fellow students and instructor when interacting in this course. Take Netiquette suggestions seriously. Flaming is considered a serious violation and will be dealt with promptly. Postings that do not reflect respect will be taken down immediately." (Rebecca Adams, OLIT 535)*
- *"This course encourages different perspectives related to such factors as gender, race, nationality, ethnicity, sexual orientation, religion, and other relevant cultural identities. The course seeks to foster understanding and inclusiveness related to such diverse perspectives and ways of communicating."*
- *Link to Netiquette document:* http://online.unm.edu/help/learn/students/pdf/discussion-netiquette.pdf

Copyright Issues
All materials in this course fall under copyright laws and should not be downloaded, distributed, or used by students for any purpose outside this course.

Accessibility
The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. If you have a disability requiring accommodation, please contact the UNM Accessibility Resource Center in 2021 Mesa Vista Hall at 277-3506 or http://as2.unm.edu/index.html. Information about your disability is confidential.

- Blackboard's Accessibility statement: http://www.blackboard.com/accessibility.aspx
- *Include links to accessibility statements for all other technologies included in the course.*

Academic Misconduct

You should be familiar with UNM's Policy on Academic Dishonesty and the Student Code of Conduct (http://pathfinder.unm.edu/campus-policies/other-campus-policies.html) which outline academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act.

Example Drop Policy:

This section states your departmental policy for dropping students.

UNM Policies: This course falls under all UNM policies for last day to drop courses, etc. Please see http://www.unm.edu/studentinfo.html or the UNM Course Catalog for information on UNM services and policies. Please see the UNM academic calendar for course dates, the last day to drop courses without penalty, and for financial disenrollment dates.

V - Technical Skills

In order to participate and succeed in this class, you will need to be able to perform the following basic technical tasks:

Use UNM Learn (help documentation located in "How to Use Learn" link on left course menu, and also at http://online.unm.edu/help/learn/students/)

- Use email – including attaching files, opening files, downloading attachments
- Copy and paste within applications including Microsoft Office
- Open a hyperlink (click on a hyperlink to get to a website or online resource)
- Use Microsoft Office applications
  - o Create, download, update, save and upload MS Word documents
  - o Create, download, update, save and upload MS PowerPoint presentations
  - o Create, download, update, save and upload MS Excel spreadsheets
  - o Download, annotate, save and upload PDF files
- Use the in-course web conferencing tool (Collaborate Web Conferencing software)
- Download and install an application or plug in – required for participating in web conferencing sessions

Technical Requirements

Computer
- A high speed Internet connection is highly recommended.
- Supported browsers include: Internet Explorer, Firefox, and Safari. Detailed Supported Browsers and Operating Systems: http://online.unm.edu/help/learn/students/

- Any computer capable of running a recently updated web browser should be sufficient to access your online course. However, bear in mind that processor speed, amount of RAM and Internet connection speed can **greatly** affect performance. Many locations offer free high-speed Internet access including UNM's Computer Pods.
- For using the Kaltura Media Tools inside Learn, be sure you have downloaded and installed the latest version of Java, Flash, and Mozilla Firefox. They may not come preloaded.
- Microsoft Office products are available free for all UNM students (more information on the UNM IT Software Distribution and Downloads page: http://it.unm.edu/software/index.html)

For UNM Learn Technical Support: (505) 277-0857 (24/7) or use the "Create a Support Ticket" link in your course.

Web Conferencing
Web conferencing will be used in this course during the following times and dates:
For the online sessions, you will need:
- *A USB headset with microphone. Headsets are widely available at stores that sell electronics, at the UNM Bookstore or online.*
- *A high-speed internet connection is highly recommended for these sessions.   A wireless Internet connection may be used if successfully tested for audio quality prior to web conferencing.*
          For UNM Web Conference Technical Help: (505) 277-0857

Tracking Course Activity

UNM Learn automatically records all students' activities including: your first and last access to the course, the pages you have accessed, the number of discussion messages you have read and sent, web conferencing, discussion text, and posted discussion topics. This data can be accessed by the instructor to evaluate class participation and to identify students having difficulty.

III - **Reading List Content:** Readings for this course come from a variety of sources**.**

1) **Technology Management Principles**

Source is book by Melissa Schilling, *Strategic Management of Technological Innovation*, 5th Edition, N.Y: McGraw Hill.

Chapter 1   Introduction

Chapter 2   Sources of Innovation

Chapter 3   Types and Patterns of Innovation

Chapter 5   Timing of Entry

Chapter 6   Defining the Organization's Strategic Direction

Chapter 7   Choosing Innovation Projects

Chapter 8   Collaboration Strategies

Chapter 9   Protecting Innovation

Chapter 10   Organizing for Innovation

Chapter 13   Crafting a Deployment Strategy

2) Technology, Economic Development and Entrepreneurship

Readings

1. Peter F. Drucker, "The Discipline of Innovation," Harvard Business Review; Aug2002, Vol. 80 Issue 8, p 95-103
2. Engel, J. S., "Global Clusters of Innovation," California Management Review, Winter 2015, 57(2), 36-65.
3. Ács Z, Åstebro T, Audretsch D, Robinson D. Public policy to promote entrepreneurship: a call to arms. *Small Business Economics*. June 2016;47(1):35-51
4. Ács Z, Audretsch D, Braunerhjelm P, Carlsson B. Growth and entrepreneurship. *Small Business Economics*. September 2012;39(2):289-300.
5. Ács Z, Autio E, Szerb L. National Systems of Entrepreneurship: Measurement issues and policy implications. *Research Policy*. April 2014;43(3):476-494.
6. Ács Z, Desai S, Hessels J. Entrepreneurship, economic development and institutions. *Small Business Economics*. October 2008;31(3):219-234
7. Ács Z, Szerb L. Entrepreneurship, Economic Growth and Public Policy. *Small Business Economics*. March 2007;28(2/3):109-122.
8. Carlsson B, Ács Z, Audretsch D, Braunerhjelm P. Knowledge creation, entrepreneurship, and economic growth: a historical review. *Industrial & Corporate Change*. December 2009;18(6):1193-1229.
9. Malecki E. Global Knowledge and Creativity: New Challenges for Firms and Regions. *Regional Studies* October 2010; 44(8):1033-1052.
10. Malecki, E. Jockeying for Position: What It Means and Why It Matters to Regional Development Policy When Places Compete. *Regional Studies*. 38, 9, 1101-1120, Dec. 2004.
11. National Science Board. *Science and Engineering Indicators 2016*(NSB-2016-1). Arlington, VA: National Science Foundation.
12. Naude, W. and Szirmai, A., "The importance of Manufacturing in Economic Development: Past, Present and Future Perspectives," United Nations University, 2012.
13. OECD, National Innovation Systems, 1997.

3) US Technology Policy

1. Patricia K. Falcone, Office of Science and Technology Policy, The White House. Science,

Technology and Innovation for America's National Security: power point presentation

2. Deloitte University Press (2014). Navigating the Next Wave of Globalization. Pages: Preface-page 47**. http://d2mtr37y39tpbu.cloudfront.net**

3. Ernest & Young (2013). Looking Beyond the Obvious: Globalization and New Opportunities for Growth. www.ey.com

4. White House (2015). National Security Strategy.

5. Trustwave (2016). 2016 Trustwave Global Security Report. www2.trustwave.com.

6. National Science and Technology Council (2016). A 21st Century Science, Technology and Innovation Strategy for America's National Security. www.defenseinnovationmarketplace.mil.

7. Dutta, Soumitra., and Lanvin, Bruno (2014). The Global Innovation Index 2015. Geneva: WIPO. www.globalinnovationindex.org

8. Battelle (2015). 2015 Global R&D Funding Forecast. www.battelle.org

9. James Kadtke and Linton Wells II, Policy Challenges of Accelerating Technological Change: Security Policy and Strategy Implications of Parallel Scientific Revolutions," Center for Technology and National Security Policy, National Defense University, 1-68, 2014.

10. Elihu Zimet, Robert Armstrong, Donald Daniel and Joseph Mait, Technology, Transformation and New Operational Concepts," Defense Horizons, Number 31, 18, -2003

11. Gerald Borsuk and Timothy Coffey, "Moore's Law: A department of Defense Perspective," Defense Horizons, number 30, 1-8, 2003.

12. Posen, Adam., and Tarullo, Daniel (2005). Economics and National Security. The Princeton Project on National Security. www.princenton.edu

13. Porter, M., and Rivkin, J. (2012). Prosperity at Risk: Findings of Harvard Business School's Survey on U.S. Competitiveness. Harvard: Harvard Business School. www.dev.create.org

14. Aziz, S. F., "Security and Technology: Rethinking National Security," Texas A&M Law Review, Vol. 2, 2015.

4) – Investments, Trade, Security, Technology and Innovation

1. Baban Hasnat, "US national Security and Foreign Direct Investment", Thunderbird International Business Review, 57:3, 185

2. Vincenzo Bove, Leandro Elia and Petros G. Sekeris, "US Security Strategy and the Gains from Bilateral Trade", Review of International Economics, 22:5, 863-885, 2014.

3. World Economic Forum (2016). The Global Risks Report. Geneva: World Economic Forum. P.1-p. 47. www3.weforum.org.

4. Clapper, J. (2016). Worldwide Threat Assessment of the US Intelligence Community. Washington, D.C: Senate Select Committee on Intelligence. www.dni.gov

5. National Science and Technology Council (2016). A 21st Century Science, Technology and Innovation Strategy for America's National Security. www.defenseinnovationmarketplace.mil.

6. Schwab, K., and Sala-i-Martin, X. (2015). The Global Competitiveness Report 2015-2016, Part 1. Geneva: World Economic Forum, p.1-46. www.weforum.org

7. McKinsey Global Institute, "Manufacturing the Future: the Next Era of Global Growth and Innovation". 2012

8. McKinsey Global Institute, "Digital Globalization", 2016

9. McKinsey Global Institute, "The Internet of Things," 2015.

The course is made of 4 parts. Each part is designed for two weeks of the semester culminating in the October 27-29 timeframe.

Part I. (August 22 to September 6, 2016) Technology and Innovation

Introduction for Section of Course

This first part of the course introduces the link between technology, innovation, entrepreneurship, economic development and by extension national security. It describes the importance of each of these elements individually and collectively to create an economic milieu in which the country can develop resources that can contribute to economic security and also to national security.

Section Objectives

1. Define innovation and technology management by examining the sources of technology and innovation in the country and how they link to economic well-being and ultimately provide the resources and capabilities for security.
2. Examine the enterprise of technology and innovation and its link to economic development and security as well as national security

Reading Assignments

Powerpoint Presentation	**Sul Kassicieh. Why Technology and Innovation**
Reading 1	**Peter F. Drucker. The Discipline of Innovation**
Schilling	**Chapters 1-3 and 5**
Reading 2	**Engel, J. S. Global Clusters of Innovation".**
Reading 3	**Acs Z, Åstebro T, Audretsch D, Robinson D. Public policy to promote entrepreneurship: a call to arms".**
Reading 4	**Ács Z, Autio E, Szerb L. National Systems of Entrepreneurship: Measurement issues and policy implications.**
Reading 5	**Carlsson B, Acs Z, Audretsch D, Braunerhjelm P. Knowledge creation, entrepreneurship, and economic growth: a historical review.**
Reading 6	**Malecki E. Global Knowledge and Creativity: New Challenges for Firms and Regions.**
Reading 7	**National Science Board. *Science and Engineering Indicators 2016***

Self-assessment

Do you fully understand the complexity of the link between the actions of individuals and groups in coming up with innovative solutions to two phenomena: a) we produce these innovations to keep the economy of the country strong (employment, economic virtuous cycle, increasing tax base,

infrastructure, capabilities, etc.) and how some of these innovative activities can help in solving issues in national security.

Discussion Questions

Each one of the articles is focused on linking technology and innovation to economic well-being. Extend this thinking to how **two** of the articles/chapters/presentations/readings above can influence national security. Please describe each of the two articles' major conclusions and extend those conclusions to national security.   Post your analysis to the discussion board so that the instructor and your fellow students can comment.

How do R&D, technology, innovation, investments and trade affect the future of the country and its security? Policy plays a major part to support small and large enterprises in their endeavor to use technology to further the economic well-being of the nation as it competes in the world economy. How does technology management contribute to the economic security of the US?   What part does competition play and is there a link between economic security and national security? Each one of the chapters poses questions about the link between economic development, entrepreneurship and security. Each of the discussion questions will address the chapter's focus and its link to security (economic and national).

Instructor Feedback

Instructor will provide a reponse to the discussions, questions and propositions in the discussion section as a way to insure that we are all progressing together through this course.

Wrap Up

This introductory part helped us define technology and innovation and their link to economic security. We extended this idea into national security through our discussions and a look at the competition in the world in using technology and funding it (as in the National Science Foundation Science and Engineering Indicators). This is the basis for US competitiveness and its ability to innovate to meet national security needs.

Looking Ahead

In the next section we will examine the link to national security in a ahighly competitive world. We will examine security strategy and howwhat we do and what our friends and foes around the world do in this arena affects our national security activities and results.

Part II (September 7 to September 19, 2016) Link To National Security

Introduction for Section of Course

In this section, we start looking at the factors that influence the link between technology/innovation and national security. We look at these factors from multiple perspectives such as risks, globalization (linking to the other course in this module), strategy and economics.

Section Objectives

1. Examine the link between technology and innovation and national security from multiple perspectives
2. Analyze the link between global security: economic, social, environmental, political, technological and other factors and variables.

Reading Assignments

Schilling	**Chapters 6-8**
Presentation	**Patricia K. Falcone. Science, Technology and Innovation for America's National Security. (power point presentation)**
Reading 8	**Deloitte University Press. Navigating the Next Wave of Globalization.**
Reading 9	**Ernest & Young. Looking Beyond the Obvious: Globalization and New Opportunities for Growth**
Reading 10	**White House (2015). National Security Strategy.**
Reading 11	**World Economic Forum. The Global Risks Report 2016.**
Reading 12	**Posen, Adam and Tarullo, Daniel. Economics and National Security.**
Reading 13	**Porter, M. and Rivkin, J. Prosperity at Risk: Findings of Harvard Business School's Survey on U.S. Competitiveness.**

Self-assessment

Do these relationships make sense? Look at different scenarios of economic performance and how they affect national security. Do the same for different level of risks, strategic decisions that link economic issues and technology/innovation to national security. Are there risks if we do better/worse in employment, economic virtuous cycle, increasing/descreasing tax base, infrastructure, capabilities, etc.) and what will that result in?

Discussion Questions

Each one of the articles is focused on linking some aspect of technology and innovation to national security. Take one of these issues such as risks, strategy, competitiveness and globalization and describe how an enhancement and a deterioration in that area can lead to better/worse national security. Also

critique US technology policy? What are the positive aspects and what are some of the problems that it can create? Build a case for your analysis and recommendations.

Project Work

At this point, you should have enough of a handle on technology/innovation and economic and national security. From the research that you have done so far to comment and discuss these issues, you should have identified an area of technology that you are interested in and should start defining several issues for your final paper

a) Area of technology (broadly or narrowly defined as you prefer, for instance, you can examine semiconductors in general or go to a specific area of sensors, etc.; computerization or computer security, etc.)
b) Develop a sense of global issues and areas in the world where this area of technology/innovation is of particular significance to US national security
c) Propose to the instructors the technology area as well as the geographical area of interest
d) Start you work on the final paper.

Instructor Feedback

Instructor will provide a response to the discussions, questions and propositions in the discussion section as a way to insure that we are all progressing together through this course.

Wrap Up

The link between technology and innovation and national security comes through in many different areas of interest such as risks, global issues, competitive nature of markets and security capabilities development. In this section, we explored some of these building on the student's repertoire and helping the student in starting to think and research areas for the final paper.

Looking Ahead

In the next section we will examine areas of technology and innovation that are of extreme importance in today's world. These are areas that affect many of the issues that we have discussed earlier in the course and these areas are one that many national security groups have identified as essential for a secure nation. We look at several of these and by no means a complete list but we focus on some that are of significance to national security activities and results.

Part III (September 19 to October 3, 2016) Technology and Innovation Areas of Importance

Introduction for Section of Course

This section introduces a few areas that are of extreme significance to national security. It is simply a definition of many areas that impact national security, It is not designed as a complete list but to be one that identifies some of the most important ones.   Students are encouraged if they have other interests to explore those areas and suggest to the instructors those areas as the subject of the student's final project.

Section Objectives

1. Define areas of innovation and technology that impact national security and examine the resources and capabilities that are needed to stay ahead of the competition in these areas.
2. Analyze the link between global security and these technology areas.
3. Examine forecasts of future global technological challenges in light of recent developments and security threats.

Reading Assignments

Schilling   **Chapters 10 and 13**

Reading 14   **Trustwave. Global Security Report 2016.**

Reading 15   **McKinsey Global Institute. Manufacturing the Future: the Next Era of Global Growth and Innovation 2012**

Reading 16   **McKinsey Global Institute, "Digital Globalization", 2016**

Reading 17   **McKinsey Global Institute, "The Internet of Things," 2015.**

Reading 18   **Naude, W. and Szirmai, A. The importance of Manufacturing in Economic Development: Past, Present and Future Perspectives 2012.**

Reading 19   **OECD. National Innovation Systems 1997.**

Reading 20   **Aziz, S. F. Security and Technology: Rethinking National Security 2015.**

Self-assessment

Which one of these areas do you think is the most significant and why? which one do you think is challenging and why? How does the realms of national security and business intersect in these areas and what does that mean for the technology area and for national security?

Discussion Questions

Take the self-assessment question, do some research for your paper and discuss with your fellow students some of the questions posed above in the self-assessment area. Also in some situations, we come up with scientific discoveries designed for national security that move towards commercial use and in some instances, we find commercially available products/processes and services that can

enhance national security. Discuss this link and try to come up with one example of each one of these instances.

Instructor Feedback

Instructor will provide a response to the discussions, questions and propositions in the discussion section as a way to insure that we are all progressing together through this course.

Wrap Up

This section focused on particular areas of technology where we compete with many countries and where we collaborate with many others.   This competition and collaboration defines the trajectory of these technologies in national security but also in business where we affect economic well-being. Examining the work in one of these areas allows us to understand this tension between keeping technology secure in some instances and using it for commercial activities in others. Developing these skills is essential but so is the process we use to decide what to share and what not to share and the interactions between these decisions and our economic and national security.

Looking Ahead

In the next section, we examine some of the other factors that affect the two areas of economic and national security.   These are areas that help us in developing strategies and actions that we develop today with an eye on the future. These reports examine areas of competitiveness, funding for technology development, innovation capabilities and their link to developing strategies for the future.

Part IV. (October 4 to October 27, 2016) Developing Strategies for the Future

Introduction for Section of Course

In this section, we examine areas that affect the future. We look at what exists as building blocks for work in technology and innovation, available resources for this work and strategies that can be used to accentuate the strengths and to close the gap on weaknesses.

Section Objectives

1. Examine strategies based on predictions of needs and available resources
2. Understand the link between available resources, innovation and technology finding and capabilities and our strategy
3. Look for areas to emphasize and areas where we need help in closing the gap

Reading Assignments

| **Reading 21** | National Science and Technology Council. A 21st Century Science, Technology and Innovation Strategy for America's National Security 2016. |

| **Reading 22** | Dutta, Soumitra., and Lanvin, Bruno (2014). The Global Innovation Report 2015. |

| **Reading 23** | IRI, 2016 Global R&D Funding Forecast. |

| **Reading 24** | James Kadtke and Lintion Wells II, Policy Challenges of Accelerating Technological Change: Security Policy and Strategy Implications of Parallel Scientific Revolutions 2014. |

| **Reading 25** | Schwab, K., and Sala-i-Martin, X. The Global Competitiveness Report 2015-2016, Part 1. |

Self-assessment

Are you satisfied with your final paper, the research that you have done and the knowledge that you have acquired or honed in this course? What else would have mattered and would have helped you. Please share this with your instructors as our way of continuous improvement.

Discussion Questions

Our meetings on October 27, 28 and 29 will explore all of the areas that we have developed in class. In these days, we will do the instructor feedback as well as the wrap up for the course and presentations of the final projects for each student.