



CNS VISITING FELLOWS SYLLABUS

The CNS Visiting Fellow program typically comprise of a series of focused lectures and panel discussions on international nonproliferation and disarmament topics offered in a small-group seminar format by CNS experts and scholars. A key component of the program is participation in two or three key Middlebury Institute graduate-level courses.

There are no exams at the end of the program, but each Visiting Fellow is required to complete a research paper on a nonproliferation topic of their choice and to present the findings at a seminar near the conclusion of the program.

Visiting Fellows lecture series

The lecture series may include, but will not be limited to lectures and panel discussions on the following topics:

Theory and Research

- Theory and Concepts of International Organizations and Regimes,
- Nonproliferation Research and Writing
- International Security Research and Analysis
- Making effective presentations

WMD related technologies

- Introduction to Nuclear Technology and the Nuclear Fuel Cycle
- Nuclear Weapons Effects
- Introduction to Chemical and Biological Weapons
- Introduction to Drones
- Introduction to Missile Technology and Ballistic Missile Defense
- Fissile Material: Banning the Production, Limiting the Use, and Eliminating the Surplus
- Future of Nuclear Energy
- New technologies and nonproliferation

Institutional mechanisms and arms control

- Reasons why states forgo or gave up nuclear weapons: Lessons from the past
- Understanding the NPT
- Nuclear Weapons-Free Zones: Are they still relevant?
- International Safeguards: History and Overview
- The CTBT
- CWC and BWC and related challenges
- US-Russian cooperation with respect to the removal of CW from Syria, and the politization of the OPCW
- TPNW
- Nuclear Arms Control
- United Nations Disarmament and Nonproliferation Machinery
- Introduction to Arms Control negotiations
- Nonproliferation and nuclear deterrence

- Role of security assurances in the nuclear nonproliferation regime
- Gender and Intersectionality around Nuclear Weapons

WMD security and terrorism:

- International Nuclear Security Regime
- Nuclear Security and Prevention of Nuclear Terrorism
- CBRN Terrorism
- Radio-active Source Security
- Illicit Trafficking
- Nuclear and Radioactive Materials
- Nuclear Forensics

Export controls and related mechanisms

- UNSCR 1540 and Nonproliferation Export Controls
- Disruptive technologies and future of export controls
- The AQ Khan Network and Impact on Strategic Trade Control
- Export Controls and the Challenge of Intangible Technology Transfer

Cyber security

- Cybersecurity, Cyber Warfare and Cyber Defense Concepts

Open-source nonproliferation intelligence

- Using Open- Source Intelligence (OSINT) in Nonproliferation Analysis and Research
- North Korea's nuclear weapon designs

Regional nonproliferation and stability

- Russia's Nonproliferation Policies
- Soviet WMD Legacy, Security Threats, and Geopolitics
- China's nuclear program and nonproliferation policies
- North Korean nuclear and missile program
- WMD and the Middle-East
- Iran and the JCPOA
- Israel's nuclear program
- US nonproliferation policies and perception on international security
- South Asia and International Nuclear Cooperation
- WMD issues in South Asia, including missile defense
- Japan's Nuclear Disarmament, Nonproliferation, and Energy Policy
- South Africa's past nuclear weapons program and nonproliferation policies

MIIS Graduate level courses

CNS Visiting Fellows are able to audit, and are encouraged to participate in the following three nonproliferation Graduate degree level courses. Visiting Fellows may also petition to audit other selected graduate level courses provided the course instructors approved such attendance, AND that these courses do not conflict with the Visiting Fellows lecture series.

NPT Review Conference Simulation (mandatory in the Fall semester)

This course is devoted to a simulation of a NPT Review Conference. It will involve multilateral negotiations on the implementation of the NPT, with special reference to issues of nuclear disarmament, nonproliferation, and peaceful uses of nuclear energy. Based on the outcome of the previous Review Conferences, and other relevant treaties and events course participants will engaged in major debates and at the simulated Review Conference on the subjects of nuclear disarmament, nuclear risk reduction (and the deterioration of US-Russian relations), creation of additional nuclear-weapon-free zones (especially in the Middle East), DPRK nuclear brinkmanship, the status of the JCPOA, other regional nuclear threats, the future of the CTBT, negative security assurances, nonproliferation

compliance, international safeguards, nuclear terrorism, peaceful nuclear uses, and provisions for withdrawal from the Treaty. The course will rely as much as possible on in-person deliberations, but plans have been made to conduct the negotiations in a realistic virtual environment if necessary.

Introduction to Weapons of Mass Destruction Nonproliferation

This course provides a comprehensive introduction to the issues surrounding the proliferation of nuclear, biological, chemical, and radiological (NBCR) weapons and their means of delivery, the consequences of proliferation, and means to stem it or ameliorate its dangers, including: nuclear, biological, chemical, and radiological weapons technologies; means of delivery, including ballistic and cruise missile technology; alternative perspectives on the dangers of proliferation and the utility of the term “weapons of mass destruction” (WMD); factors affecting why states do or don’t pursue and obtain nuclear, biological, chemical, and radiological weapons and their means of delivery; potential and actual non-state actor pursuit, acquisition, and use of NBCR weapons; profiles of key countries and their NBCR programs and policies; deterrence vis-à-vis states and non-state actors; counterproliferation, including the possible use of force; the nuclear nonproliferation regime, including the Nuclear Non-Proliferation Treaty (NPT) and the International Atomic Energy Agency (IAEA) safeguards system; the Biological and Toxin Weapons Convention (BWC); the Chemical Weapons Convention (CWC); missile control regimes and other export control arrangements; cooperative threat reduction and various post-9/11 initiatives; alternative futures, including new nuclear abolition debates.

Science and Technology for Nonproliferation and Terrorism Studies

This course provides students with a solid foundation in scientific and technical fundamentals critical to nonproliferation and terrorism policy analysis. Such policy analyses often require strong foundational knowledge of basic scientific and technical concepts in order to understand, create, and inform policy decisions. The course begins with an introduction to science and the scientific method and then evolves into the three main areas: biological weapons, chemical weapons, nuclear weapons and relevant technologies. Topics covered in the biological component include fundamental concepts related to microorganisms, DNA, RNA, proteins, and processes of infection and disease. Topics covered in the chemistry component include fundamental concepts related to atomic structure and the periodic table, chemical structural representations, functional groups, reactivity, toxicity, as well as modern separation, purification and analytic techniques commonly used for chemical species. Applications of the fundamental concepts in the first two topics are further developed in relation to features of chemical and biological weapons and warfare, including agents, delivery methods and effects. Topics covered in the nuclear component part of the course includes radioactivity, uranium, nuclear weapons, radiation detection instrumentation and applications, environmental plumes, and various instrumentation and analysis techniques. Upon completion of this course students will have a deeper appreciation for the debate on various verification solutions that have been proposed for compliance under the Biological and Toxin Weapons Convention (BWC), Chemical Weapons Convention (CWC) and nuclear treaties.