



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

- Theory and Concepts of International Organizations and Regimes,
- Nonproliferation Research and Writing
- Making effective presentations
- Introduction to Arms Control negotiations
- Introduction to Nuclear Technology and the Nuclear Fuel Cycle
- Nuclear Weapons Effects
- Introduction to Chemical and Biological Weapons
- Countering Chemical and Biological Weapons and Related Threats
- Fissile Material: Banning the Production, Limiting the Use, and Eliminating the Surplus
- Introduction to Missile Technology and Ballistic Missile Defense
- Understanding the Nuclear Non-proliferation Treaty
- Nuclear Weapons-Free Zones
- International Safeguards: History and Overview
- The Comprehensive Nuclear-Test-Ban Treaty
- Nuclear Arms Control
- Treaty on the Prohibition of Nuclear Weapons
- Nuclear Security and Prevention of Nuclear Terrorism
- International Nuclear Security Regime
- Radio-active Source Security
- Soviet WMD Legacy, Security Threats, and Geopolitics
- United Nations Disarmament and Non-proliferation Machinery
- UNSCR 1540 and Non-proliferation Export Controls
- Disruptive technologies and future of export controls
- The AQ Khan Network and Impact on Strategic Trade Control
- Illicit Trafficking
- Nuclear and Radioactive Materials

- Nuclear Forensics
- Cybersecurity and Cyber Warfare
- Cyber Defense Concepts
- New Tools and Approaches for Disarmament and Nonproliferation Verification
- South Asia and International Nuclear Cooperation
- WMD issues in South Asia, including missile defense
- Russia's Nonproliferation Policies
- North Korean nuclear and missile program, and open-source evidence about North Korea's nuclear weapon designs
- China's nuclear program and nonproliferation policies
- WMD and the Middle-East
- Iran and the JCPOA
- Israel's nuclear program
- Japan's Nuclear Disarmament, Nonproliferation, and Energy Policy
- US nonproliferation policies and perception on international security
- Reason why states forgo or gave up nuclear weapons: Lessons from the past

MIIS Graduate level courses

CNS Visiting Fellows will be able to audit and are encouraged to participate in the following nonproliferation Graduate degree level courses:

NPT Review Conference Simulation (only offered in the Fall semester)

This course is devoted to a simulation of the delayed 10th NPT Review Conference, originally scheduled for spring 2020. This four-week Review Conference tentatively is scheduled to convene in New York in January 2021, although it may well be delayed until later in the year. It will constitute the last session of the 2020 NPT review process cycle. 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 2015 Review Conference, the 2017 Treaty on the Prohibition of Nuclear Weapons, and the results of the 2017, 2018 and 2019 NPT Preparatory Committee meetings, one would expect major debates at the Review Conference on the subjects of nuclear disarmament (including the US initiative on Creating an Environment for Nuclear Disarmament, the "Ban Treaty." and the impact of the unravelling of arms control accords on the NPT), 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.

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.