**Life scientists for peaceful research**

ISTC Virtual course on Responsible research, export control and ethics in the life sciences related to CBRN

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**Abstract**

This virtual course is for undergraduate, graduate, and post-graduate students, academic and other professional researchers in life sciences. Life sciences are inherently and inextricably linked to concerns over the dual use of these sciences. The focus of the course is on raising awareness of the misuse potential and the responsibility of scientists as part of a wider approach to address issues around dual use materials, knowledge, and technologies. This responsibility includes reflection on ethical dilemmas and engagement in public dialogue as core strategies. The course includes a modular set of slides and an annotated reading list, suitable for individual learning as well as adaptation in academic curricula. In addition to an introduction explaining the target audience and rationale for offering the course, the following modules are included: exploring core concepts; addressing the special role of scientists; discussion of professional ethical dilemmas; and raising contextual awareness. The learning goals include basic knowledge about what constitutes dual use life sciences and technologies and about the regulatory context, practical understanding of core ethical concepts and general awareness of ethical dilemmas and possible strategies for handling them.

**Key words:** responsible research, dual use life sciences, export control

**Who should follow the course?**

This virtual course is primarily offered to graduate and post-graduate students, but can also be used by undergraduate students, senior academics and professional researchers in public research centres and companies in Central Asia and Eastern Europe. The course is mainly addressed to researchers active in life sciences. The scope includes, but is not limited to medicine, pharmacy, biology, chemistry, agriculture, food science, as well as informatics, mathematics, engineering, etc.

**What is covered?**

The course raises awareness among students and researchers of responsible research, export control and ethics in the life sciences related to CBRN. It consists of four modules. The first explores core ethical concepts that help to frame dual use issues. The second addresses the special role of scientists in collective responsibility. The third discusses ethical and professional dilemmas on the scientific work floor. The fourth raises international context-awareness surrounding issues arising from dual use in the life sciences.

**How is it taught?**

The course is offered online for self-study and may be incorporated in academic curricula and other teaching material. It is made up of four PowerPoint presentations and a pdf including an annotated reading list. The expected duration is around ten hours. No examination is foreseen, but each module ends with some self-evaluation questions.

**Where and when is the content applicable?**

While the ethical issues related to life sciences are universal, the course is intended for scientists working in Central Asia and Eastern Europe. Researchers engaged in international collaboration involving the exchange of knowledge, know-how, materials, or technologies are encouraged to follow the course. This includes scientists publishing in international journals. In addition, the course contents are relevant to scientists working with dual use materials and technologies in their own country with a potential to be misused. The course can be incorporated in higher education curricula as well as in a life-long learning and professional reskilling context.

**Why is it offered by ISTC?**

The International Science and Technology Centre (ISTC) hosts this virtual course in the framework of the Targeted Initiative on CBRN Export Control on Dual-Use Materials and Technologies in Central Asia supported by the EU. This capacity building programme encompasses several training activities for customs officials, industry representatives, researchers, and academics. Three seminars on Export Control on Dual Use Materials and Technologies in Central Asia have been organised and a PhD Grant programme is offered. In addition to knowledge of the listed dual use technologies and national and international legal framework, understanding of relevant ethical issues is covered by this programme. This virtual course addresses the latter. The demand for such a course among younger generations of researchers has become evident during the [CONDENsE](https://www.interacademies.net/index.php/news/condense-conference-nonproliferation-and-dual-use-awareness) conference on non-proliferation and dual use awareness (29-30 August 2019, Ypres, Belgium). By offering the course, ISTC is acting on request of interested constituencies in the region. It is not excluded that those who follow the course might become participants of a network, like other communities of practitioners facilitated by ISTC. The ISTC Forum is available for such activities.

Read more about ISTC and its history [here.](http://www.istc.int/en/about)

**How does it fit in the international context?**

The course is part of the ISTC Targeted Initiative on CBRN Export Control of Dual-use Materials and Technologies, supported by the European Union, from the Directorate General for International Cooperation and Development ([DEVCO](https://ec.europa.eu/info/departments/international-cooperation-and-development_en)). It is also linked to the work on dual use and trade control aspects of Responsible Research and Innovation of the [European Studies Unit](http://www.esu.ulg.ac.be/) at the University of Liege in Belgium, and to the EU funded partner to partner [(P2P)](https://ec.europa.eu/jrc/en/research-topic/chemical-biological-radiological-and-nuclear-hazards/eu-p2p-outreach-programmes-export-control) export control project for improving the effectiveness of export control systems of dual-use items to prevent proliferation of weapons of mass destruction and related materials, equipment and technologies.