



RESIDENZA UNIVERSITARIA
BIOMEDICA
FONDAZIONE COLLEGIO UNIVERSITARIO
S. CATERINA DA SIENA



UNIVERSITÀ DEGLI STUDI
DI PAVIA

The course is organized together with Residenza Universitaria Biomedica – Collegio S. Caterina

COURSE ON ETHICS OF RESEARCH, RESPONSIBLE RESEARCH AND INNOVATION AND SCIENCE COMMUNICATION

Course learning outcomes

Teaching ethics of research and Responsible Research and Innovation (RRI) at doctoral level in Universities is mandatory in most of European countries. Science communication and dissemination is part of the duties of the researchers and is essential for the public involvement of citizenship in the process of decision making when science is involved in policies and norms.

We set up an experimental interdisciplinary course in Ethics of Research, RRI and science communication for doctoral students at University of Pavia since the academic year 2016-2017, following the model proposed by the EU Commission (undergraduate students are welcomed, but should apply by e-mail with a motivation letter and a short CV).

The **methodology** includes frontal lessons, case discussions, participatory processes and active involvement of the students in the development of each lesson. We want to foster interaction and participation. Simulation of ethics assessment and social impact assessment of research procedures, ethics evaluation and interaction with the general public will also take place to allow the students to develop practical skills in the field.

The course will require some homework, like reading essays and papers.

Our teaching goals for ethics of research and science communication fit into the following four general categories: **knowledge, skills, attitude and behaviors**.

Knowledge about the responsible conduct of research will include the facts, guidelines, policies, data and other sources of information.

Among the core competencies that we want our students to acquire there are:

- Knowledge of the history and development of ethical norms and charts in biomedicine and other fields.
- Knowledge of, and sensitivity to, issues surrounding the responsible conduct of research and research misconduct.
- Appreciation for accepted, normative scientific practices for conducting research.

- Awareness of the grey areas and ambiguities of ethical issues, including differences between compliant and ethical behaviour in the conduct of research, or the range of acceptable and unacceptable practices.
- Awareness that rules change over time and vary across disciplines or nations.
- Information about the regulations, policies, statutes, and guidelines that govern the conduct of research.

Skills to promote ethical practice in science include specific proficiencies, for example:

- Ethical decision-making, including recognizing problems, identifying and examining assumptions underlying practices, using analytical skills and strategies in addressing issues and problems, and exploring implications of different courses of action.
- Critical thinking and problem solving.
- Conflict resolution, arbitration and mediation, people management.
- Impact assessment of research and innovation.

Attitudes and behaviors, defined by an acceptance of the value of acting in ways which foster responsible conduct. This area of the course will focus on:

- Collection, use, and interpretation of research data.
- Methods for reporting and reviewing research plans or findings.
- Relationships among researchers with one another.
- Relationships between researchers and those that will be affected by their research.
- Means for responding to misunderstandings, disputes, or misconduct.
- Options for promoting ethical conduct in research.
- Attitude toward the funders, the citizens and the policy makers.

Basic skills in science communication and public involvement

- Basic knowledge of the models and research in science communication.
- Tools for science communications.
- The role of the scientists and the role of other professional figures.
- Cognitive bias and heuristics in scientific decision making.
- Public involvement of citizens in decision making.
- Overview of participatory processes.
- The role of media and how to interact with them as a scientist.

Number of hours and timing: 20 hours

Lecturers: Daniela Ovadia (20 hours).

Scientific committee: Gabriella Bottini, Amedeo Santosuosso

Disciplines involved the course: PhD students from all the disciplines are welcomed. The more multidisciplinary is the course, the best result we achieve. In previous years, the course recruited mostly PhD students from scientific disciplines (psychology, biology, medicine). We would like to increase the number of participants from Humanities and from Engineering and Technology disciplines.

Course syllabus

- At the roots of ethics and human subject research
- Informed consent
- Drug trials and recruitment

- Animal research
- Embryo and stem cell research
- Basic knowledge of legal aspects of ethics and science
- APA guidelines, psychological and social research
- Who evaluates the ethics? Research ethics committees, national and international institutions etc.
- Data management and privacy
- Ethics of new technologies, ethics of engineering
- Environmental ethics
- Social impact of scientific research: how to evaluate it
- Foresight and future studies
- Intellectual property and authorship
- “Publish or perish” and quality of research
- Professional ethics, misconducts, fraud and retractions
- Conflicts of interest
- Responsible research and innovation and EU ethics rules
- How to write an ethics work package for a research project
- Communicating science effectively: models from the social sciences and from the research on science communication
- Who is involved in science communication: professional figures and their role in the communication ecosystem.
- Public involvement, techniques for public debate (participatory processes) and decision making in controversial issues.
- Cognitive bias and heuristics.
- From ethics to policy making.
- Final debate on the role of the “concerned scientist”.

Evaluation criteria

Students will be evaluated on the following criteria:

- attendance
- participation in the discussions and simulations
- final multiple choice questionnaire

Language: the course and case discussions will be held in English.