COURSE OUTLINE

1. GENERAL

SCHOOL	NATURAL SCIENCES		
ACADEMIC UNIT	BIOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	BIO_EE07	SEMESTER	5/7
COURSE TITLE	APPLIED ETHICS AND BIOETHICS		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	WEEKLY TEACHING HOURS	CREDITS
Lectures	2	3
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialised general knowledge
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBSITE (URL)	http://www.biology.upatras.gr/

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Upon course completion, the student will be able to know the following subjects satisfactorily:

1. the main philosophical and moral questions from the practical results of knowledge, derived from the development of the major bio-scientific-technological achievements, and in relation to their moral implications extended from the experimental organisms to human beings.
2. the main bioethical principles and their legal framework for limiting the risks from the applications of new biotechnologies such as assisted reproduction, cloning, genetically modified organisms, stem cells, genetic redesign of life, procedural genetics, artificial intelligence etc.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma

Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others…*
	…….

- Working independently
- Team work
- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Production of free, creative and inductive thinking
- Decision-making
- Criticism and self-criticism
- Adapting to new situations

3. COURSE CONTENT

I. 1. General Introduction: From moral theory to meta-ethics and transition to applied ethics, with special emphasis on the emergence of the epistemological autonomy of applied ethics as an area of conjugation of science, law and philosophy. 2. Introduction to the applied ethics method as a weighting field of positive values in the context of genuine moral dilemmas. 3. Introduction to the fields of bioethics. 4. Introduction to Bioethics Institutions.

II. Bioethics of genetically modified plants / food (indicatively, plant biotechnology - creation of plants resistant to pathogens, and environmental stresses - transgenic plants and diet / taste) Bioethics questions from the implementation of the above achievements (impacts on humans and the environment, social questions, patent issues, biosecurity issues).

III. Bioethical reference to assisted reproduction (indicatively, at what embryonic stage the beginning of life is identified, embryo selection, prenatal control, termination of pregnancy, sperm / egg donors, surrogate mothers), the use of stem cells (for example, embryonic stem cells, stem cell banks, sex selection, immortality and euthanasia in procedural genetics.

IV. Molecular biotechnology and bioethical issues: Definitions and examples. Historical data. Ethical codes, basic principles of biomedical ethics ("Belmont text") and bioethics committees. Basic principles of research activity. Instructions for researchers conducting clinical studies (informed consent of participants, personal patient data and anonymity, rules and ethics committees). Patents. The Asilomar Conference on Recombinant DNA. Cloning - Transplants - Gene therapy and moral dilemmas. Genetic redesign and children on demand - Eugenics. Mapping human genome, and tissue and gene ownership. Personalized medicine and pharmacogenomics. Biotechnology Law, and protection of personal genetic data. Infectious diseases and protection of public health.

V. Bioethics on experimental animal models, and good practice in the use of experimental animals: 1. Genetic engineering of animals used in science. 2. Animal welfare (housing). 3. Animal management (phenotype issues, experimental

procedures, pain, suffering and strain, duration of studies, final rejection and euthanasia), reports to the International Society for Applied Ethology and the World Organization for Animal Health.

VI. Neuro-ethics (referring to ethical dilemmas arising from the rapid growth of neuroscience research, and related to the possible application of new diagnostic and therapeutic approaches, not only in illness but also in health, such as improvement of cognitive abilities, mental mood, emotion etc.)

VII. Bioethics of neurotechnological applications, artificial intelligence ("evolving" machines), bio-robotics, bio-governing ("digital citizen"), "neuro-politics", geno-technologically pursued "superman" etc.

Laboratory Exercises

Not offered

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face. Discussion during lecture. Bibliographic projects.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	*Semester workload*
Lectures	25
Course total	**75**

STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	Written exams at the end of the semester

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:
- Related academic journals: