

Course title: Bioethics and Public Awareness				
Course code: BBP 171	No. of credits: 1	L-T-P: 14-0-0	Learning hours: 14	
Pre-requisite course code and title (if any): None				
Department: Department of Biotechnology				
Course coordinator: Dr K.P Kochhar		Course instructor: Dr K.P Kochhar		
Contact details: kpkochhar6@gmail.com				
Course type: Core		Course offered in: Semester 3		
Course description: The present course is structured as two distinct modules. The first module seeks to sensitize the candidates to wider issues concerning the ethics in biotechnology. The topics covered would explore the socio-economic issues relating to biotechnology and their broader impact on the society. The ethics relating to transparency in scientific validation of regulatory procedures shall form a critical aspect of the course as also topics concerning research priorities and ownership issues. Stem cell transplantation, xeno-transplantation and the impact of rDNA based medicines on the public morality would be discussed. The second module of this course shall emphasize on the mechanisms for generating public awareness in biotechnology and importance of effective communication strategies especially from the point of view of agriculture biotechnology.				
Course objectives: Module 1- To provide knowledge about principles of Bioethics and its interface with Biotechnology in the current local and global context Understand the policies and practice of ethics in Plant biotechnology with special reference to Agricultural Biotechnology. Narrate/ Enumerate important Controversies regarding Pros and Cons of GMOs, implications and long term impact. To make student able to understand Sustainable Development Goals, Food Security issues, Regulatory Procedures, compliance Understand Responsibility and Role in Society as ethically empowered bio-scientists and researchers. Module 2 -To make students understand interaction with Academia, Industry, Government and Public. Evince Knowledge of Research Priorities, Ownership and Publication Ethics. To attain professional and communication skills to disseminate spoken and written communication in academia and lay public.				
Course contents				
S.No	Topic	L	T	P
Module 1: Bioethics				
1	Overview of Bioethics and ethical issues in biotechnology	2	0	0
2	Socio-economic issues and broader impact on society	2	0	0
3	Transparency and Scientific Validation on regulatory procedures	1	0	0
4	Research priorities and ownership issues	2	0	0
Module 2: Public Awareness and communication strategies				
1	Developing effective communication strategies	3.5		
2	Dissemination of effective Scientific information in common language	3.5		
	Total	14	0	0
Evaluation criteria: 1. Term Paper: 30% 2. Minor test: 10% 3. End semester 60%				
Learning outcomes: 1. Familiarity with historical background of evolution of ethics and public awareness. 2. Awareness about ethical issues related to Genetically Modified Crops. Pros and Cons of Genetically Modified Crops globally and with special reference to scenario in India. 3. Knowledge related to principles and practice of ethics in Agricultural, Medical, Pharmaceutical, nutraceutical and industrial biotechnology. 4. Development of presentation skills, scientific communications and able to designing ethically sound research proposals for showcasing research/ideas. 5. Knowledge of all stakeholders Academia, Industry, Government, Regulatory Bodies, Collaborators etc. 6. To be able to blend and balance professionalism and ethics in personal Interactions and workplace.				

Materials:

1. Ethical aspects of agricultural biotechnology (1999) EFB Task Group on Public Perceptions of Biotechnology, Cambridge Biomedical Consultants
2. Report of the panel of eminent experts on ethics in food and agriculture (2000) Food and agriculture organization of the United Nations Rome (2001) Editing, design, graphics and desktop publishing: Editorial Group FAO Information Division
3. Thompson P (1995) The spirit of the soil: agriculture and environmental ethics. London, Routledge
4. Sagar A, Daemmrich A and Ashiya M (2000) The tragedy of the commoners: biotechnology and its publics. Nature Biotechnology 18: 2-4
5. Members of Working Group, Nuffield Council on Bioethics (2004) The use of genetically modified crops in developing countries
6. Weblink (AgBIOS home Page): <http://www.agbios.com/articles.php> provides a comprehensive compilation of relevant articles, studies, reports, reviews and proceedings related to Agriculture biotechnology and regulations including Ethics in Agricultural Biotechnology

Additional information (if any):**Student responsibilities:**

1. Class attendance.
2. Study of course materials as specified by the instructor.

Course reviewers:

The course is reviewed and commented by the following experts.

1. Dr. Morven A. McLean, President, AGBIOS Inc
2. Dr. Sanjeev Kalia (Monsanto India Inc.)
3. Dr. Veena Chhotray (Former Secretary, Ministry of Environment and Forests, Chairman, Genetic Engineering Approval Committee, Presently Secretary, Ministry of Social Justice and Empowerment)