LEHMAN COLLEGE
OF THE
CITY UNIVERSITY OF NEW YORK

DEPARTMENT OF BIOLOGICAL SCIENCES

CURRICULUM CHANGE

1. **Type of change: Experimental Course**

2.

Department(s)	Biological Sciences
Career	[X] Undergraduate [ ] Graduate
Academic Level	[X] Regular [ ] Compensatory [ ] Developmental [ ] Remedial
Subject Area	Biotechnology
Course Prefix & Number	BIO 452
Course Title	**Applied Techniques in Biotechnology**
Description	In this course, students will learn fundamental concepts and methods in molecular biotechnologies and the application of those technologies. The course will use current research techniques which give students the opportunity to gain practical laboratory skills that are in much demand in a variety of academic and corporate biotechnology sectors involved in improving human and animal health, agriculture, and the environment.
Pre/ Co Requisites	**Course Prerequisites:** BIO 166 and 167, 238, 331 and 420.
Credits	4 credits
Hours	6 hours (2 lecture, 4 lab)
Liberal Arts	[X] Yes [ ] No
Course Attribute (e.g. Writing Intensive, WAC, etc)	
General Education Component	_X__ Not Applicable ____ Required ____ English Composition ____ Mathematics __ __ Science ____ Flexible ____ World Cultures

	____ US Experience in its Diversity ____ Creative Expression ____ Individual and Society ___ _ Scientific World

3. **Rationale:** Biotechnology is a field in which elements of bioinformatics, molecular and cell biology, genetics, immunology, and microbiology combine into an interdisciplinary science. Molecular biotechnology involves the use of laboratory techniques to study and manipulate nucleic acids and proteins, and these tools can be applied to develop and improve drugs, vaccines, diagnostic tests, and therapies aimed at improving human and animal health. In addition, biotechnology has applications in agriculture, aquaculture, and the renewable energy and biofuels industries, and will play a pivotal role in research aimed at addressing growing concerns regarding food security in the face of global climate change. The field of Biotechnology provides excellent employment opportunities in both academia and industry. Biotechnology and biomedicine have been identified as leading growth sectors of the world economies in the 21st century, and it has been predicted that within the next decade, the biotech sector will add over 100,000 new jobs. The need for individuals with the knowledge base and skill sets required for these positions is expected to grow.

4. **Learning Outcomes (By the end of the course students will be expected to):**
- Have gained a theoretical knowledge of biotechnology, as well as practical experience of applications in this field
- Formulate and test a hypothesis and evaluate results of experiments designed to test the hypothesis
- Describe current or future experimental approaches aimed at facilitating the transfer of genetic information between organisms and how this may advance an understanding of important biological processes or lead to the creation of a novel and/or useful product
- Use appropriate biotechnological terms during written and oral communication
- Organize ideas for written and oral communication

5. **Date of Departmental Approval:** November 12th, 2014