Genetic Engineering and Biotechnology (XGEN203)

Course Syllabus

Course Description
The co-evolution of genetic engineering and biotechnology in the last 30+ years has allowed for groundbreaking findings in molecular biology that have revolutionized our understanding of nature and its applications in society. Discovering that genetic code could be manipulated and added to various organisms led to developing transgenic techniques in yeast, plants, animals and even humans.

This course will expand your understanding of genetic research and give you the perspective to form your own opinions on controversial topics within the field. Further your knowledge of genome research, gain greater awareness of the benefits and risks, and explore the latest research and technologies advancing the science of genetic engineering and biotechnology.

This course is an elective course in the Stanford Genetics and Genomics Certificate.

Course Topics
Module 1: Class Introduction
Michael Snyder

Module 2: What is Genetic Engineering?
Jose Prado
Module Exercises-
- Reading
- Activity: Internet Search: GMO

Module 3: Common GMOs in Industry
Michael Snyder, Barbara Dunn, Arthur Grossman

Module 4: Genetic Engineering in Plants
Jose Prado
Module Exercises-
- Reading

Module 5: Biotechnology
Michael Snyder, Ximena Ares

Instructors
Michael Snyder
Academic Director, Stanford Genetics and Genomics Certificate
Professor and Chair in Genetics, Stanford University

Jose Prado
Geneticist, Monsanto
Barbara Dunn  
Senior Research Scientist, Stanford University

Arthur Grossman  
Staff Scientist, Carnegie Institution, Department of Plant Biology and Professor (by Courtesy), Biological Sciences, Stanford University

Ximena Ares  
Licensing Associate, Office of Technology Licensing, Stanford University

Course Requirements
Please watch all course videos and complete all course assignments. Successful completion of the assignments, final examination and course evaluation are required to complete this course. The exam consists of multiple choice questions and is done online. A link will unlock within the “Final Steps” section of the learning platform after you have completed all of the other course activities.

You may attempt the final examination multiple times. A score of 90% is required to successfully pass the exam. Once you have passed the examination and completed the evaluation, a digital record of completion will be emailed to you.

Exercises
Each exercise will be submitted via the course assignment submission area within the course learning platform. To successfully complete each exercise, you will need to follow all instructions. You will be receiving instructor feedback on some of your submitted assignments. Feedback on those exercises will be given within the learning platform within 3-5 business days. Please continue to progress through the course while awaiting instructor feedback.

Your responses to the exercises will be kept within the learning platform. However, you will not have access to the responses you submitted after 90-day course access has expired. If you would like to keep a copy for your records, please do so separately.

Please note that some assignments may contain Macromedia Flash movies or Java applets. Notes about these requirements will be included in the assignment instructions.

Course Materials
All course materials are provided within the course learning platform. These include the course videos, course handouts and all assignment instructions.

The course learning platform is available to you for 90-days after date of enrollment via your mystanford connection account. For more information regarding how to use the course learning platform, please visit http://player.vimeo.com/external/99190590.hd.mp4?s=02b5cdd84bc1d9e48f2320ce1d15b25b

Questions
Please contact SCPD Student Services at stanford-genetics@stanford.edu or 650-263-4700. Available 8:30am- 4:30pm Pacific Time, Monday- Friday.