

## **New Frontiers in Cancer Genomics (XGEN206)**

### **Course Syllabus**

#### **Course Description**

New research shows that genetic variations continue to accrue throughout tumor development. Having the ability to conduct deep sequencing on the healthy and cancerous cells in a patient, at multiple stages of growth and treatment, has led to invaluable findings and new directions for analyses in the field.

This course explores the role of genomics in cancer diagnosis, prognosis and treatment. Providing a greater view of mutations through tumor profiling, more targeted and personalized health care can be administered and positively impact disease outcomes. Discover the latest research advancing the study of cancer and the power of genomics in medical decision making.

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

#### **Course Topics**

##### Module 1: Course Overview

*Michael Snyder*

##### Module 2: Review of Cancer and Genomics

*Lars Steinmetz*

##### Module 3: Genomic Analysis of Familial Cancers

*Jim Ford*

Module Exercises-

- Activity: Assessing Cancer Risk

##### Module 4: Cancer Genomic Landscapes

*Christina Curtis*

Module Exercises-

- Activity: Treating Cancer
- Reading

##### Module 5: Epigenomics

*Michael Snyder*

Module Exercises-

- Reading

##### Module 6: Breakthrough Research and Therapeutics

*Michael Snyder, Lars Steinmetz, Christina Curtis, Natalie Jaeger*

### **Instructors**

Michael Snyder

*Academic Director, Stanford Genetics and Genomics Certificate  
Professor and Chair in Genetics, Stanford University*

Lars Steinmetz

*Professor of Genetics, Stanford University*

Jim Ford

*Associate Professor, of Medicine (Oncology), of Genetics, and by courtesy, of Pediatrics, Stanford University*

Christina Curtis

*Associate Professor, of Medicine (Oncology) and of Genetics, Stanford University*

Natalie Jaeger

*Instructor, 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 my**stanford**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](mailto:stanford-genetics@stanford.edu) or 650-263-4700. Available 8:30am- 4:30pm Pacific Time, Monday- Friday.

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