

Experimental Methods in Systems Biology

www.coursera.org/learn/experimental-methods

About this course: Learn about the technologies underlying experimentation used in systems biology, with particular focus on RNA sequencing, mass spec-based proteomics, flow/mass cytometry and live-cell imaging. A key driver of the systems biology field is the technology allowing us to delve deeper and wider into how cells respond to experimental perturbations. This in turn allows us to build more detailed quantitative models of cellular function, which can give important insight into applications ranging from biotechnology to human disease. This course gives a broad overview of a variety of current experimental techniques used in modern systems biology, with focus on obtaining the quantitative data needed for computational modeling purposes in downstream analyses. We dive deeply into four technologies in particular, mRNA sequencing, mass spectrometry-based proteomics, flow/mass cytometry, and live-cell imaging. These techniques are often used in systems biology and range from genome-wide coverage to single molecule coverage, millions of cells to single cells, and single time points to frequently sampled time courses. We present not only the theoretical background upon which these technologies work, but also enter real wet lab environments to provide instruction on how these techniques are performed in practice, and how resultant data are analyzed for quality and content.

Created by: Icahn School of Medicine at Mount Sinai

Basic Info	Course 2 of 6 in the Systems Biology and Biotechnology Specialization .
Commitment	6-8 hours/week
Language	English
How To Pass	Pass all graded assignments to complete the course.
User Ratings	4.6 stars
	Average User Rating 4.6 See what learners said



Syllabus

WEEK 1

Introduction

Description goes here

5 videos, 6 readings

Graded: Quiz 1

WEEK 2

Deep mRNA Sequencing

Description goes here

5 videos, 4 readings

Graded: Quiz 2

WEEK 3

Mass Spectrometry-Based Proteomics

Description goes here

6 videos, 3 readings

Graded: Quiz 3

WEEK 4

Midterm Exam

Description goes here

Graded: Midterm Exam

WEEK 5

Flow and Mass Cytometry for Single Cell Protein Levels and Cell Fate

Description goes here

7 videos, 4 readings

Graded: Quiz 4

WEEK 6

Live-cell Imaging for Single Cell Protein Dynamics

Description goes here

5 videos, 4 readings

Graded: Quiz 5

WEEK 7

Integrating and Interpreting Datasets with Network Models and Dynamical Models

Description goes here

3 videos, 4 readings

Graded: Quiz 6

WEEK 8

Final Exam

Graded: Final Exam

FAQs

How It Works



Coursework

Each course is like an interactive textbook, featuring pre-recorded videos, quizzes and projects.



Help from Your Peers

Connect with thousands of other learners and debate ideas, discuss course material, and get help mastering concepts.



Certificates

Earn official recognition for your work, and share your success with friends, colleagues, and employers.

Creators

Icahn School of Medicine at Mount Sinai

The Icahn School of Medicine at Mount Sinai, in New York City is a leader in medical and scientific training and education, biomedical research and patient care.

Pricing

	Audit	Purchase Course
Access to course materials	Available	Available
Access to graded materials	-	Available
	Not available	
Receive a final grade	-	Available
	Not available	
Earn a shareable Course Certificate	-	Available
	Not available	

Ratings and Reviews

Rated 4.6 out of 5 of 98 ratings

Share

[Tweet](#)

[Email](#)

You May Also Like