Biotechnology / Bio-Trac®

Excellence in Biotechnology Training.

At a Glance Schedule Fall 2025.

Bio-Trac® in partnership with Montgomery College is proud to offer graduate/post graduate level hands-on laboratory training workshops for research scientists at the Bioscience Education Center's state-of-the-art facility in Germantown, Maryland. Workshops are team taught by active research scientists and innovators from leading research institutes (NIH, JHU, Georgetown LCRC, EVMS, USDA, and the FDA) and private industry. Bio-Trac courses deliver instruction on current research methodologies.

Preregistration (https://biotrac.com/preregistration/) for these classes is strongly encouraged due to small class sizes.

CRN#	Course	Course Name	Hours	#Days	Start Date	End Date	Mode	Days	Times
24587	BIO002	**Advanced Gene Editing with CRISPR**	21	3	12/3/2025	12/5/2025	Face to Face	Wed, Thu, Fri	9:00 AM - 5:00 PM

Advanced three-day workshop designed for researchers with entry level experiece with CRISPR/Cas9 technology.

CRN#	Course	Course Name	Hours	#Days	Start Date	End Date	Mode	Days	Times
24082	BIO024	**Best Practices in Mammalian Cell Culture**	21	3	9/10/2025	9/12/2025	Face to Face	Wed, Thu, Fri	9:00 AM - 5:00 PM

Team taught by experts with years of tissue culture experience, this workshop will provide a comprehensive overview of the principles and techniques of mammalian cell culture as well as focused presentations relating to primary cell culture, stem cell culture, organoids and 3D cultures, cell line authentication and cellular reprogramming. The hands-on laboratory training, provided by a team of subject matter experts from the American Type Culture Collection, will focus on all aspects of cell culture including thawing, expansion, cryopreservation, and authentication.

CRN#	Course	Course Name	Hours	#Days	Start Date	End Date	Mode	Days	Times
24585	BIO005	Bio-Trac FACS	28	4	11/11/2025	11/14/2025	Face to Face	Tue, Wed, Thu, Fri	9:00 AM - 5:00 PM

This Bio-Trac workshop is a hands-on intense workshop in the use of flow cytometry and cell sorting in modern molecular bilogy research and development.

CRN#	Course	Course Name	Hours	#Days	Start Date	End Date	Mode	Days	Times
24609	BIO006	**Bio-Trac Gene Editing with CRISPR**	21	3	10/29/2025	10/31/2025	Face to Face	Wed, Thu, Fri	9:00 AM - 5:00 PM

Gene engineering provides the ability to manipulate gene expression in a desired cell type. In order to realize the full potential of stem cells, the development of tools to modify targeted genes is paramount. This course will provide an overview of the CRISPR engineering platform. The first part of the course will cover the general principles of the CRISPR technology including design and assembly along with the platforms available and different costs associated with each of them. The second part of the course will transition into different applications including engineering in mice, disease modeling, generating iPSC reporter lines, and high throughput approaches. We will also consider sequencing and quality control considerations for these technologies.

CRN#	Course	Course Name	Hours	#Days	Start Date	End Date	Mode	Days	Times
24584	BIO017	**Single Cell RNA Seq**	28	4	11/17/2025	11/20/2025	Face to Face	Mon, Tue, Wed, Thu	9:00 AM - 5:00 PM

This hands-on four-day workshop is designed to introduce research scientists interested in the single cell RNA-seq. In this program, the fundamentals of RNA-seq and single cell RNA-seq will be discussed as well as detailed library preparation information by using Illumina-Biorad, 10x Genomics, Fluidigm, and in-house drop-seq. Single Cell RNA-Seq analysis will include Principal Component Analysis and t-SNE.

CRN#	Course	Course Name	Hours	#Days	Start Date	End Date	Mode	Days	Times
24611	BIO028	**Spatial Biology Symposium**	14	2	9/15/2025	9/16/2025	Face to Face	Mon, Tue	9:00 AM - 5:00 PM

This two-day symposium consists of lecture presentations, given by world class scientist in the field of spatial biology, focusing on topics in the fields of pathology, spatial biology, multiplex immunofluorescence, artificial intelligence, and translational medicine; exploring the latest advancements in the field.

CRN#	Course	Course Name	Hours	#Days	Start Date	End Date	Mode	Days	Times
24586	BIO026	**Spatial Transcriptomics: From Sample Preparation to Data Analysis**	7	1	10/20/2025	10/20/2025	Face to Face	Mon	9:00 AM - 5:00 PM

Designed for research scientists who are new spatial users, this one-day lecture and hands-on in silico laboratory workshop will provide foundational information to succeed when starting experiments; from sample preparation to data analysis, as well as provide familiarity with available assays, analysis tools, and how to work with your Single Cell or Bioinformatics core to get the desired results.

CRN#	Course	Course Name	Hours	#Days	Start Date	End Date	Mode	Days	Times
24610	BIO032	**Spectral Flow Cytometry**	14	2	10/16/2025	10/17/2025	Face to Face	Thu, Fri	9:00 AM - 5:00 PM

This two day program is ideal for those who are looking for an in-depth, hands-on introduction to Spectral Flow Cytometry. The instructors will focus on a broad spectrum of spectral flow cytometric topics, discuss examples from various research applications as well as trouble shooting and experimental design. Attendees will have hands-on experience on multiple spectral flow platforms.