Winter Intersession 2015 Professional Science Master's Courses

We are offering 1 and 2 credit laboratory modules during the winter intersession 2015. Laboratory modules span 2 or more days and combine hands-on experiments with lectures on the theoretical background. Any number and combination of modules may be taken and the credits applied toward undergraduate or graduate degrees. **Graduate tuition rates apply**. These sections are **not** open to enrollment through the Center for Continuing Studies (CCS).

The modules are listed below. Please contact elaine.mirkin@uconn.edu for permission numbers. Seats are limited.

MCB 5670 Introduction to Operations of the Illumina MiSeq and MCB 5671 **Microbial Genome Sequencing, Assembly and Annotation** utilize the Illumina MiSeq, an extremely useful and cost-effective Next Generation Sequencing instrument for a wide range of uses applicable to eukaryotic and prokaryotic genomics. Our advanced modules focus on microbiological applications including small genome sequencing, ultra-deep 16S rRNA gene sequencing and transcriptomes. The chemistry, library preparation, and data analysis is identical to the Illumina HiSeq instrument. Please contact joerg.graf@uconn.edu for additional information on these courses.

Please keep the following in mind. A request for a permission number and registration in any one of the courses is a commitment to complete the course. Please do not request a permission number until you are sure of your commitment. All of the courses are very popular and once a permission number is issued that spot is no longer available to another student.

Information on graduate tuition and fees for the winter intersession can be found on the Winter Intersession website under Fees and Dates.

INTERMEDIATE LEVEL (requires prior research experience or completion of MCB 5427 Introduction to Molecular Biology Techniques)

MCB 5427-01 Laboratory Techniques in Functional Genomics (Course ID 002558)
Topic – Cell Culture Techniques (Course Topic ID 13; Topic Link ID 4899)
Dates: January 5 and January 6, 2015; 9 a.m. to 5 p.m.
1 credit
Enrollment Limit 6
Instructors: Charles Giardina and Michelle Rosado
Room TLS 201
January 5, 2015: 9 a.m. to 5 p.m.
January 6, 2015: 9 a.m. to 5 p.m.
Instructor Consent Required
Contact elaine.mirkin@uconn.edu for permission number. This section is closed to non-degree and BGS enrollment. Prerequisite is MCB 5427 Introduction to Molecular Biology Techniques, relevant research lab experience, or permission of instructor. Participants learn the fundamentals of cell culture. Main topics covered include cell culture media formulation and filtration sterilization, aseptic approaches to cell dissociation and passaging, handling biosafety 2 level cell lines, cell freezing and stock retrieval, monolayer cell transfection methods, and cell viability tests on 96 well plates.

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Operations of the Illumina MiSeq is the prerequisite for *Microbial Genome Sequencing, Assembly and Annotation* and preferential enrollment will be given to those students who enroll in both *Operations of the Illumina MiSe* and *Microbial Genome Sequencing, Assembly and Annotation*.

MCB 5670-1 Theory and Practice of Laboratory Techniques in Microbiology (Course ID 016291)
Topic – Operations of the Illumina MiSeq (Course Topic ID 3; Topic Link ID 8242)
Dates: January 9; 9 a.m. to 5 p.m. and January 10, 2015; 9 a.m. to 12 p.m. (noon)
1 credit
Enrollment limit 10
Instructors: Joerg Graf and Michael Nelson
Room BPB 401
January 9, 2015: 9 a.m. to 5 p.m.
January 10, 2015: 9 a.m. to 12 p.m. (noon)
Contact elaine.mirkin@uconn.edu for permission number. This section is closed to non-degree and BGS enrollment. Prerequisite is MCB 5427 Introduction to Molecular Biology Techniques, relevant research lab experience, or permission of instructor. In this module students will receive training on how to operate an Illumina MiSeq, Agilent Bioanalyzer, and Qubit. Theory of sequencing by synthesis, quality assessment, and data analysis will be discussed. Participants will be given an overview of the different applications for the MiSeq that include small genome sequencing, microbial transcriptome sequencing, and ultra-deep 16S rRNA gene sequencing. The successful completion of this module is required for users to gain independent access to the MiSeq.

MCB 5671-1 Advanced Theory and Practice of Laboratory Techniques in Microbiology (Course ID 016292)
Topic – Advanced Liquid Handling and Sample Processing (Course Topic ID 5; Topic Link ID 8249)
Dates: January 7 and January 8, 2015; 9 a.m. to 5 p.m.
1 credit
Enrollment Limit 6
Instructors: Joerg Graf, Susan Janton, and Austin Ricker
Room TBA
January 7, 2015: 9 a.m. to 5 p.m.
January 8, 2015: 9 a.m. to 5 p.m.
Contact elaine.mirkin@uconn.edu for permission number. This section is closed to non-degree and BGS enrollment. Prerequisite is MCB 5427 Introduction to Molecular Biology Techniques, relevant research lab experience, or permission of instructor. Participants will learn how to program and use Eppendorf's EpMotion5075 that is equipped with vacuum and a thermomixer and Qiagens QIAgility for setting up dilution series and PCR reactions. In addition students will learn how to use an automated tube sorter with a bar code reader from BioMicroLab, XL200. For more information about this equipment, you can visit http://www.biotech.uconn.edu/marsf/.

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ADVANCED LEVEL (Please see prerequisite requirements for the individual courses listed below)

MCB 5671-2 Advanced Theory and Practice of Laboratory Techniques in Microbiology (Course ID 016292)
Topic – Microbial Genome Sequencing, Assembly and Annotation (Course Topic ID 1; Topic Link ID 8245)
Dates: January 12, January 13, January 15, and January 16, 2015; 9 a.m. to 5 p.m.
2 credits
Enrollment limit 10
Instructors: Joerg Graf, Sophie Colston, and Michael Nelson
Room TLS 201
January 12, 2015: 9 a.m. to 5 p.m.
January 13, 2015: 9 a.m. to 5 p.m.
January 15, 2015: 9 a.m. to 5 p.m.
January 16, 2015: 9 a.m. to 5 p.m.
Contact elaine.mirkin@uconn.edu for permission number. This section is closed to non-degree and BGS enrollment. Prerequisite is MCB 5670 Introduction to Operations of the Illumina MiSeq or permission from the instructor. In this module, each student will sequence a bacterial genome. The sequencing will be done using the new Nextera library construction kit. We will sequence the genome using the MiSeq. The data analysis will include de novo and reference assembly as well as annotation. The data analysis will be done using MiSeq software and CLC genomes workbench.