

## Course Change Request

## New Course Proposal

Date Submitted: 12/19/18 12:36 pm

Viewing: **MLAB 418 : Human Molecular and Chromosomal Applications and Pathology**

Last edit: 12/19/18 12:36 pm

Changes proposed by: dpolayes

Are you completing this form on someone else's behalf?

Yes

Requestor:

Name	Extension	Email
Ann Verhoeven	3-1572	averhoev@gmu.edu

Effective Term: Fall 2019

Subject Code: MLAB - Medical Laboratory Science

Course Number: 418

Bundled Courses:

Is this course replacing another course? No

Equivalent Courses:

Catalog Title: Human Molecular and Chromosomal Applications and Pathology

Banner Title: Human Molecular Pathology

Will section titles vary by semester? No

Credits: 1-3

Schedule Type: Lecture w/Lab

Hours of Lecture or Seminar per week: 2

Hours of Lab or Studio per week: 2

Repeatable: May be repeated within degree (RD)

Max Allowable Credits: 10

Default Grade Mode: Undergraduate Regular

Recommended Prerequisite(s):

Recommended Corequisite(s):

Required Prerequisite(s) / Corequisite(s) (Updates only):

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?

Registration Restrictions (Updates only):

Registrar's Office Use Only - Registration Restrictions:

Field(s) of Study:

Class(es):

Level(s):

Degree(s):

## In Workflow

- MLAB Undergraduate Representative
- SC Curriculum Committee
- SC Associate Dean
- Assoc Provost- Undergraduate
- Registrar-Courses
- Banner

## Approval Path

- 12/19/18 1:55 pm  
Larry Rockwood (Irockwoo):  
Approved for MLAB Undergraduate Representative

**School(s):**

**Catalog Description:** This course presents advanced methods in nucleic acid testing to human medico-legal, forensic, and pathology applications. Topics include: Polymorphisms, RFLP, Paternity Testing, Linkage, Single Nucleotide Polymorphisms, Bone Marrow Engraftment, Mitochondrial DNA Polymorphisms and Disorders, Chromosomal Abnormalities, Patterns of Inheritance, Single Gene Disorders, Lysosomal Storage Disorders, Cystic Fibrosis, Trinucleotide Repeats, Genomic Imprinting , Array CGH, Molecular Oncology, HLA and Transplantation

**Justification:** A new concentration in Medical Laboratory Science (MLAB) is being offered. This class will be required for students who choose the concentrations offered at our affiliated program at Quest Diagnostics.

**Does this course cover material which crosses into another department?** No

**Learning Outcomes:**

**Attach Syllabus** [BIOL 418 Syllabus Human Molecular Applications.pdf](#)

**Additional Attachments**

**Staffing:** Quest Diagnostics

**Relationship to Existing Programs:** An Affiliate Program

**Relationship to Existing Courses:** None

**Additional Comments:****Reviewer Comments**

Key: 16284

# Syllabus

## Human Molecular and Chromosomal Applications and Pathology

Instructor:

Team Taught:

Masimichi Ito, PhD.; Kasinathan Muralidharan, PhD., Meghan Starolis, PhD., Chris Spence, PhD.

Guest Lecturers:

Nicole Christacos, PhD.; Harvey Vandenburg, MHA, MT (ASCP) DLM; Renee Mohrmann, MD

### ***Human Molecular and Chromosomal Applications and Pathology***

This course presents advanced methods in nucleic acid testing to human medico-legal, forensic, and pathology applications. Topics include: Polymorphisms, RFLP, Paternity Testing, Linkage, Single Nucleotide Polymorphisms, Bone Marrow Engraftment, Mitochondrial DNA Polymorphisms and Disorders, Chromosomal Abnormalities, Patterns of Inheritance, Single Gene Disorders, Lysosomal Storage Disorders, Cystic Fibrosis, Trinucleotide Repeats, Genomic Imprinting, Array CGH, Molecular Oncology, HLA and Transplantation, and Quality Assurance in the Molecular Biology laboratory

Molecular Diagnostics: Fundamentals, Methods, and Clinical Applications, Lela Buckingham, 2nd edition

Grading:

Exam Average (3 exams) 100%

A = 90% and above

B = 80% - 89%

C = 70% - 79%

Failing: less than 70%

Students with less than 70% will be withdrawn from the program and subject to disciplinary action.

Course Agenda:

Week #		Date	No. of Hours	Time	Subject	Lecturer
Week 21	W		2	2pm-4pm	Polymorphisms	Dr. Ito
Week 22	W		2	2pm-4pm	RFLP	Dr. Ito
Week 23	W		2	2pm-4pm	Paternity Testing	Dr. Ito
Week 24	M		1	2pm-3pm	Linkage, Single Nucleotide Polymorphisms	Dr. Muralidharan
	W		1	2pm-3pm	Bone Marrow Engraftment	Dr. Muralidharan Dr. Mohrmann
Week 25	W		2	2pm-4pm	Mitochondrial DNA Polymorphisms	Dr. Ito
	F		3	2pm-5pm	Chapter 11 Review and Exam	Harvey Vandenburg
Week 30	M		2	10am-12pm	Chromosomal Abnormalities	Dr. Christacos
	W		2	10am-12pm	Patterns of Inheritance, single gene disorders	Dr. Christacos
Week 31	TU		2	2pm-4pm	DVT, Cytochrome P-450	Dr. Muralidharan
	W		2	2pm-4pm	Lysosomal Storage Disorders, Cystic Fibrosis, Limitations	Dr. Spence
Week 32	TU		2	2pm-4pm	Trinucleotide Repeats	Dr. Muralidharan
	W		2	2pm-4pm	Genomic Imprinting	Dr. Spence
Week 33	W		2	2pm-4pm	Mitochondrial Disorders	Dr. Ito

<b>Week 35</b>	<b>W</b>		<b>2</b>	<b>10am-12pm</b>	<b>Array CGH</b>	<b>Dr. Christacos</b>
<b>Week 38</b>	<b>W</b>		<b>2</b>	<b>2-4p</b>	<b>Molecular Oncology 1</b>	<b>Dr. Spence</b>
<b>Week 40</b>	<b>W</b>		<b>2</b>	<b>10a-12p</b>	<b>Molecular Oncology 3</b>	<b>Dr. Christacos</b>
<b>Week 41</b>	<b>W</b>		<b>2</b>	<b>10a-12p</b>	<b>Molecular Oncology 4</b>	<b>Dr. Mohrmann</b>
	<b>F</b>		<b>3</b>	<b>2pm-5pm</b>	<b>Review and Exam Chapter 14</b>	<b>Harvey Vandenburg</b>
<b>Week 42</b>	<b>W</b>		<b>2</b>	<b>TBD</b>	<b>HLA</b>	<b>Dr. Muralidharan</b>
<b>Week 46</b>	<b>W</b>		<b>2</b>	<b>9am-11am</b>	<b>Quality Assurance in the Molecular Biology Laboratory</b>	<b>Dr. Starolis</b>
<b>Week 48</b>	<b>TU</b>		<b>3</b>	<b>2pm-5pm</b>	<b>Review and Exam Chapters 15 &amp;16</b>	<b>Harvey Vandenburg</b>