

## Molecular Approaches to Neuroscience

NTP 675

June 14-18, 2021

This course will have four unique components. To successfully complete this course, students will need to submit pre-work assignments in a timely fashion and engage with asynchronous course materials. We will meet face to face the week of June 14-18, 2021 and will make efficient use of our time by completing laboratory activities, including analyses as well as other relevant activities.

The four components of the course are:

1. **Pre-work**—Asynchronous material will be posted to the course Canvas site at least one week prior to June 14. You may watch lectures and complete quizzes, worksheets, and other evaluation materials beginning June 7. Please note that some items will have deadlines associated with the in-person content.
2. **Evaluation** – Evaluation of your engagement and learning will include quizzes, worksheets, data analyses, and in person attendance and contributions to class. As noted above, some items will be bound to deadlines associated with our in-person modules.
3. **In-person** – Several hours per day have been designated for in-person attendance the week of July 14-18, 2021. Please review the schedule and plan to be on the Promega campus during that time.
4. **Office hours/Individual Consultations** – These can be scheduled as needed throughout the week of June 14-18, 2021.

### Tentative Schedule:

Date	Time	Module	Instructor
<b>Monday, June 14</b>			
<b>Asynchronous Pre-work and Evaluation Materials</b> <i>Please check Canvas for recordings and evaluation materials, which must be completed prior to attending in person.</i>			
		<i>Lecture</i> Purifying RNA	Sarah Teter
		<i>Lecture</i> Studying miRNAs	Doug Horejsh
		<i>Lecture</i> CRISPR/Cas-9 design and implementation	Michael Slater
		<i>Lecture</i> PCR Techniques with an emphasis on RT-PCR and qPCR.	Rod Pennington
<b>Additional Assignments:</b>	TBD		
<b>In-Person Schedule</b>			
	9:00a – 9:30a	Welcome and Introductions	Amy Prevost, Erica Golueke
	9:30a – 11:30a	<i>Laboratory</i> RNA isolation from brain tissue	Sarah Teter, Amy Prevost

		and spec analysis	
	11:30a – 1:00p	<i>Laboratory</i> Cloning - RT-PCR amplification <i>Laboratory</i> RT-qPCR set up	Natalie Betz, Amy Prevost  Guest: Rod Pennington
	1:00p – 2:30p	<i>Laboratory</i> Create CRISPR pools for studying protein degradation.	Erica Golueke, Michael Slater
<b>Tuesday, June 15</b>			
<b>Asynchronous Pre-work and Evaluation Materials</b> <i>Please check Canvas for recordings and evaluation materials, which must be completed prior to attending in person.</i>			
<b>Additional Assignments:</b>	TBD		
<b>In-Person Schedule</b>			
	9:00a – 10:30a	<i>Lecture</i> Cloning – Tools and Techniques <i>Laboratory</i> Cloning –RT-PCR analysis and ligation reaction <i>(Instructors will load and run gels for students)</i>	Jim Hartnett  Natalie Betz and Amy Prevost
	10:30a – 11:30a	<i>Laboratory</i> Transfer CRISPR pools to 96-well plate.	Erica Golueke, Michael Slater
	11:30a – 12:15p	<i>Laboratory</i> Cloning- Transformation	Natalie Betz, Amy Prevost
	12:15p – 1:15p	<i>Activity</i> Professional resume writing and interviewing.	Molly Lenzendorf
	1:15p – 1:30p	<i>Laboratory</i> Cloning – plating cells	Amy Prevost
	1:30p – 2:30p	<i>Lecture</i> Using tags to study proteins	Hélène Benink
<b>Wednesday, June 16</b>			
<b>Asynchronous Pre-work and Evaluation Materials</b> <i>Please check Canvas for recordings and evaluation materials, which must be completed prior to attending in person.</i>			
		<i>Lecture</i> Characterizing Proteins	Mike Rosenblatt
		<i>Lecture</i> Studying protein degradation.	Elizabeth Caine, Kristin Riching

		<i>Lecture</i> Western Blot, ICC and ELISA	Chris Eggers
<b>Additional Assignments:</b>	TBD		
<b>In-Person Schedule</b>			
	9:00a – 2:30p	<i>Laboratory</i> Western Blot	Chad Zimprich, Amy Prevost Guest: Chris Eggers Guest: Mike Rosenblatt
	(9:45a – 10:15a)	<i>Laboratory</i> Analysis of RT-qPCR Data	Natalie Betz, Amy Prevost
	(10:45a – 11:00a)	<i>Laboratory</i> Start kinetic read for PROTACs	Erica Golueke
	(11:30a – 12:00p)	<i>Laboratory</i> Start Colony PCR	Natalie Betz, Amy Prevost
<b>Thursday, June 17</b>			
<b>Asynchronous Pre-work and Evaluation Materials</b> <i>Please check Canvas for recordings and evaluation materials, which must be completed prior to attending in person</i>			
<b>Additional Assignments:</b>	TBD		
<b>In-Person Schedule</b>			
	9:00a – 12:00p	<i>Lecture</i> Kinase biology and drug discovery  <i>Chalk Talk/Laboratory</i> Kinase biology and drug discovery	Hicham Zegzouti, Erica Golueke
	12:00p-1:30p	<i>Laboratory/Discussion</i> PROTAC data analysis and Revisiting CRISPR/Cas-9	Elizabeth Caine, Kristin Riching, Michael Slater
	1:30p – 2:30p	<i>Laboratory</i> Kinase biology and drug discovery, data analysis	Hicham Zegzouti, Erica Golueke
<b>Friday, June 18</b>			
<b>Asynchronous Pre-work and Evaluation Materials</b> <i>Please check Canvas for recordings and evaluation materials, which must be completed prior to attending in person</i>			
		<i>Lecture</i> Studying cell death and monitoring cell health.	Andrew Niles

Additional Assignments:	TBD		
<b>In-Person Schedule</b>			
	9:00a – 10:00a	<i>Lecture</i> Cells as reagents and Understanding cell viability.	Terry Riss
	10:00a – 1:00p  10:45a – 11:45a	<i>Laboratory</i> Monitoring cell health  <i>Laboratory</i> Gel analysis of colony PCR	Erica Golueke, Andrew Niles  Natalie Betz, Amy Prevost
	1:00p – 2:00p	<i>Guest lecture</i> Epigenetics and Neurodevelopment	Reid Alisch
	2:00p – 3:00p	<i>COVID Permitting – Outdoor Reception and Course Wrap Up</i>	