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:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Module</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, June 14</td>
<td></td>
<td><strong>Asynchronous Pre-work and Evaluation Materials</strong></td>
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<td></td>
<td></td>
<td><em>Please check Canvas for recordings and evaluation materials, which must be completed prior to attending in person.</em></td>
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<tr>
<td></td>
<td></td>
<td><em>Lecture</em></td>
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<tr>
<td></td>
<td></td>
<td>Purifying RNA</td>
<td>Sarah Teter</td>
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<td></td>
<td></td>
<td><em>Lecture</em></td>
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<tr>
<td></td>
<td></td>
<td>Studying miRNAs</td>
<td>Doug Horejsh</td>
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<td></td>
<td></td>
<td><em>Lecture</em></td>
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<td></td>
<td></td>
<td>CRISPR/Cas-9 design and implementation</td>
<td>Michael Slater</td>
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<tr>
<td></td>
<td></td>
<td><em>Lecture</em></td>
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<tr>
<td></td>
<td></td>
<td>PCR Techniques with an emphasis on RT-PCR and qPCR.</td>
<td>Rod Pennington</td>
</tr>
<tr>
<td>Additional Assignments:</td>
<td>TBD</td>
<td><em>Lecture</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Welcome and Introductions</td>
<td>Amy Prevost, Erica Golueke</td>
</tr>
<tr>
<td>In-Person Schedule</td>
<td></td>
<td>Laboratory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9:00a – 9:30a</td>
<td>RNA isolation from brain tissue</td>
<td>Sarah Teter, Amy Prevost</td>
</tr>
<tr>
<td>Time</td>
<td>Activity</td>
<td>Instructor(s)</td>
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</tbody>
</table>
| 11:30a – 1:00p | *Laboratory* Cloning - RT-PCR amplification
*Laboratory* RT-qPCR set up | Natalie Betz, Amy Prevost
Guest: Rod Pennington |
| 1:00p – 2:30p  | *Laboratory* Create CRISPR pools for studying protein degradation. | Erica Golueke, Michael Slater |

**Tuesday, June 15**

**Asynchronous Pre-work and Evaluation Materials**

*Please check Canvas for recordings and evaluation materials, which must be completed prior to attending in person.*

**Additional Assignments:**

TBD

**In-Person Schedule**

<table>
<thead>
<tr>
<th>Time</th>
<th>Lecture</th>
<th>Instructor(s)</th>
</tr>
</thead>
</table>
| 9:00a – 10:30a | *Cloning – Tools and Techniques*
*Laboratory* Cloning –RT-PCR analysis and ligation reaction *(Instructors will load and run gels for students)* | Jim Hartnett
Natalie Betz and Amy Prevost |
| 10:30a – 11:30a | *Laboratory* Transfer CRISPR pools to 96-well plate. | Erica Golueke, Michael Slater |
| 11:30a – 12:15p | *Laboratory* Cloning- Transformation | Natalie Betz, Amy Prevost |
| 12:15p – 1:15p  | *Activity* Professional resume writing and interviewing. | Molly Lenzendorf |
| 1:15p – 2:15p  | *Laboratory* Cloning – plating cells | Amy Prevost |
| 1:30p – 2:30p  | *Lecture* Using tags to study proteins | Hélène Benink |

**Wednesday, June 16**

**Asynchronous Pre-work and Evaluation Materials**

*Please check Canvas for recordings and evaluation materials, which must be completed prior to attending in person.*

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Characterizing Proteins</em></td>
<td>Mike Rosenblatt</td>
</tr>
<tr>
<td><em>Studying protein degradation.</em></td>
<td>Elizabeth Caine, Kristin Riching</td>
</tr>
<tr>
<td>Time</td>
<td>Activity</td>
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<tr>
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<td>-----------------------------------------------</td>
</tr>
<tr>
<td>9:00 – 2:30p</td>
<td>Lecture Western Blot, ICC and ELISA</td>
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<tr>
<td>(9:45 – 10:15)</td>
<td>Laboratory Analysis of RT-qPCR Data</td>
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<tr>
<td>(10:45 – 11:00)</td>
<td>Laboratory Start kinetic read for PROTACs</td>
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<tr>
<td>(11:30 – 12:00)</td>
<td>Laboratory Start Colony PCR</td>
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</tbody>
</table>

**Thursday, June 17**

**Asynchronous Pre-work and Evaluation Materials**
*Please check Canvas for recordings and evaluation materials, which must be completed prior to attending in person*

**In-Person Schedule**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 12:00</td>
<td>Lecture Kinase biology and drug discovery</td>
<td>Hicham Zegzouti, Erica Golueke</td>
</tr>
<tr>
<td></td>
<td>Chalk Talk/Laboratory Kinase biology and drug discovery</td>
<td></td>
</tr>
<tr>
<td>12:00 – 1:30</td>
<td>Laboratory/Discussion PROTAC data analysis and Revisiting CRISPR/Cas-9</td>
<td>Elizabeth Caine, Kristin Riching, Michael Slater</td>
</tr>
<tr>
<td>1:30 – 2:30p</td>
<td>Laboratory Kinase biology and drug discovery, data analysis</td>
<td>Hicham Zegzouti, Erica Golueke</td>
</tr>
</tbody>
</table>

**Friday, June 18**

**Asynchronous Pre-work and Evaluation Materials**
*Please check Canvas for recordings and evaluation materials, which must be completed prior to attending in person*

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lecture Studying cell death and monitoring cell health.</td>
<td>Andrew Niles</td>
</tr>
<tr>
<td>Additional Assignments:</td>
<td>TBD</td>
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</table>

### In-Person Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity Description</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00a – 10:00a</td>
<td><em>Lecture</em> Cells as reagents and Understanding cell viability.</td>
<td>Terry Riss</td>
</tr>
<tr>
<td>10:00a – 1:00p</td>
<td><em>Laboratory</em> Monitoring cell health</td>
<td>Erica Golueke, Andrew Niles</td>
</tr>
<tr>
<td>10:45a – 11:45a</td>
<td><em>Laboratory</em> Gel analysis of colony PCR</td>
<td>Natalie Betz, Amy Prevost</td>
</tr>
<tr>
<td>1:00p – 2:00p</td>
<td><em>Guest lecture</em> Epigenetics and Neurodevelopment</td>
<td>Reid Alisch</td>
</tr>
<tr>
<td>2:00p – 3:00p</td>
<td><em>COVID Permitting – Outdoor Reception and Course Wrap Up</em></td>
<td></td>
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</tbody>
</table>