

**EPID 8515 – Modeling Infectious Diseases - Fall 2018**

Last updated: 4/4/2018. This schedule is subject to change.

Date	Topics
<b>Week 1</b> Start 8/13	<b>Course introduction</b> <ul style="list-style-type: none"><li>• Course introduction and overview</li><li>• Course logistics</li><li>• Setup of software: R, RStudio, DSAIDE package, Github</li></ul>
<b>Week 2</b> Start 8/20	<b>Introduction to ID Epi Modeling</b> <ul style="list-style-type: none"><li>• Dynamical systems thinking</li><li>• Introduction to computer based ID Models</li><li>• Compartmental model approach</li></ul>
<b>Week 3</b> Start 8/27	<b>Building and analyzing simple models I</b> <ul style="list-style-type: none"><li>• Characterizing Infection states</li><li>• Symptomatic and asymptomatic versus infectious and non-infectious states</li><li>• Implementing more realism with models</li></ul>
<b>Week 4</b> Start 9/3	<b>Building and analyzing simple models II</b> <ul style="list-style-type: none"><li>• Births, deaths and waning immunity</li><li>• Steady/endemic states</li></ul>
<b>Week 5</b> Start 9/10	<b>Building and analyzing simple models III</b> <ul style="list-style-type: none"><li>• Different types of transmission mechanisms</li><li>• Environmental transmission &amp; persistence</li><li>• Vector-borne ID</li></ul>
<b>Week 6</b> Start 9/17	<b>Host Heterogeneity</b> <ul style="list-style-type: none"><li>• How to build models with multiple stratifications</li><li>• Issues with somewhat big models</li></ul>
<b>Week 7</b> Start 9/24	<b>Reproductive Number</b> <ul style="list-style-type: none"><li>• Concept</li><li>• Estimation</li><li>• Application</li></ul>
<b>Week 8</b> Start 10/1	<b>Uncertainty and Sensitivity Analysis</b> <ul style="list-style-type: none"><li>• How and when to use it</li><li>• How to code it</li></ul>
<b>Week 9</b> Start 10/8	<b>Stochastic models I</b> <ul style="list-style-type: none"><li>• Different types of stochasticity</li><li>• Building stochastic models</li></ul>
<b>Week 10</b> Start 10/15	<b>Stochastic models II</b> <ul style="list-style-type: none"><li>• Using stochastic models to answer ID questions</li><li>• More complex stochastic models</li></ul>
<b>Week 11</b> Start 10/22	<b>Topic TBD based on student interest</b>
<b>Week 12</b> Start 10/29	<b>Topic TBD based on student interest</b>
<b>Week 13</b> Start 11/5	<b>Topic TBD based on student interest</b>
<b>Week 14</b> Start 11/12	<b>Topic TBD based on student interest</b>
<i>Week of 11/19</i>	<i>Thanksgiving break</i>
Week 15, 11/26	Posting and review of projects