

MGY311Y Molecular Biology. 2015-2016 Schedule

Room: MSB 2170. Mondays, Wednesdays and Fridays, 9:00 – 10:00 A.M. (except for the two term tests, which will start at 8:30 A.M.)

Term 1: September 14 to December 7, 2015.

1. Molecular Biology: core concepts and approaches. (Dr. Rick Collins): Sept. 14 to Sept 28.
How science is done in molecular biology; the experimental basis of what we “know”.
Nucleic acid structure. Protein-nucleic acid interactions, specificity & affinity.
Alternative DNA structures (Dr. Christopher Pearson) Sept 30 and Oct 2.

2. DNA Replication (Dr. Barbara Funnell)
9 lectures: Oct 5 – Oct. 26; except Oct. 12 (Thanksgiving: no lecture)
[DNA replication in E. coli - initiation, elongation, termination; protein machines;
eukaryotic DNA replication; regulation; replicating the ends of chromosomes]

3. DNA Repair (Dr. Amy Caudy)
8 lectures: Oct 28 to Nov 16 (except Nov 9: study break)
[mutagenesis; repair mechanisms]

First term test: Wednesday Nov. 18, 2015. 8:30 a.m to 10:00 a.m (30% of the course mark)

4. Recombination. (Dr. Amy Caudy)
8 lectures: Nov 20 to Dec 7.
[Homologous, site-specific, and transpositional recombination in prokaryotes and eukaryotes].

Term 2. January 11 to April 8, 2016.

5. Transcription (Dr. Julie Claycomb)

6 lectures: Jan 11 to Jan 22.

[mechanisms of transcription - initiation, elongation, termination; initiation complexes in E. coli and eukaryotes; regulation of transcription]

6. RNA Processing. (Dr. Rick Collins)

10 lectures: Jan. 25 to Feb 22 (excluding Reading Week, Feb 15 to 19).

[processing and modification of tRNA and ribosomal RNA precursors; catalytic RNAs; processing of mRNA precursors; non-coding RNAs; RNA editing; RNA silencing; RNA localization]

Reading week: Feb. 15 - Feb. 19. No classes.

Second term test: Wednesday Feb. 24, 2016. 8:30 a.m to 10:00 a.m (30% of the course mark)

7. Translation and Post-translational processing. (Dr. Andrew Wilde)

12 lectures: February 26 – March 23.

[genetic code(s), tRNA and aminoacyl tRNA synthetases; structure of the ribosome; protein synthesis - initiation, elongation, termination; regulation of translation; secretion and targeting; post-translational modification]

March 25. Good Friday. University closed. No classes.

8. Functional Genomics. (Dr. Julie Claycomb).

6 lectures: March 28 – April 8).

[integrative approaches to identifying gene functions].

Final exam: during the Final Exam period April 2016 (20% of the course mark).

Grading Summary.

30% Term test 1. Wednesday, Nov. 18, 2015.

30% Term test 2. Wednesday, Feb. 24, 2016.

20% In-class quizzes: throughout the course.

20% Final exam. TBA: April, 2016.