BCMB 301B Course Outline Summer 2014 Table of Contents

Schedule	ii
Safety Regulations and Practices	iii
Fume Hood Utilization Guidelines	vii
Evacuation Procedures	viii
Evaluation and Grading Outline	ix
Laboratory Summary Guidelines	xi
University Policy on Academic Integrity	xv
Lab 1 – Study of Irreversible Inhibition; Serine Proteases and Serine Protease Inhibitors	1-1
Lab 2 – Characterization and Classification of Lipopolysaccharides from <i>Salmonella</i> <i>enterica</i> and the Effect of LPS Structure on its Role as a Virulence Factor	2-1
Lab 3 – Recombinant DNA Technology	3-1
Lab 4 – Transposition Insertion Mutagenesis using Mini- <i>kan</i> from a Phage Vector	4-1
Lab 5 – Intracellular Invasion of Mammalian HEp-2 Cells by <i>E.coli</i> Expressing the Invasin Protein	5-1
Appendix A – Pipetting Guide	A-1
Appendix B – Review of Calculations and Dilutions	B-1
Appendix C – Procedure for Setting up a Polyacrylamide Gel in a Bio-Rad Mini Protean™ 3 Electrophoresis Cell	C-1
Appendix D – Procedure to Dry Gels Using a Plexiglass Frame	D-1
Appendix E – Plate Count Rules, Calculation of Viable Cell Counts & Reporting of Results	E-1
Appendix F – Converting g to pmol for dsDNA	F-1
Appendix G – Media and Reagent Recipes	G-1
Appendix H – Operation Instructions for Spectrophotometers	H-1

Laboratory Schedule Summer 2014

Week	Date	Lab(s)	Day 1	Day 2	Due Dates
1	May 6, 7	Introduction Lab 1: Irreversible Inhibition	Introduction Lab 1: Irreversible Inhibition		Academic Integrity Quiz (complete by 11:59 pm on Sun, May 11) Lab 2 Pre-lab Assignment due Fri. May 9 th by 12:30.
2	May 13,14	Lab 2: Recombinant DNA Technology	Lab 2: Isolation of Genomic DNA	Lab 2: Quantify DNA, Purity Determination, PCR	Day 1: Lab 1 Summary
3	May 20, 21	Lab 2: Recombinant DNA Technology	Lab 2: Analysis of PCR , Plasmid preps, Nanodrop, Restriction Digests, Prepare Agarose Gel	Lab 2: Agarose Gel Electrophoresis, Ligation	
4	May 27, 28	Lab 2: Recombinant DNA Technology Lab 3: Transposon Mutagenesis	Lab 2: Prepare Competent Cells, Transformation Lab 3: Phage Titring	Lab 2: Examine Transformation Plates & Controls, Colony PCR, Prepare Agarose Gel Lab 3: Analyze Phage Titre Plates	Day 2: Lab 3 Result Tables
5	June 3, 4	Lab 2: Recombinant DNA Technology Lab 3: Transposon Mutagenesis	Lab 2: Analysis of PCR by Agarose Gel Electroph Lab 3: Transposition Mutagenesis	Lab 3: Transposition Mutagenesis Spread plates	Day 2:Lab 3 Result Tables
6	June 10, 11	Lab 3: Transposon Mutagenesis	Lab 3: Analyze Plates, Replica Plating Quiz Labs 1 & 2	Lab 3: Grid Plate, Streak Lac ⁻ mutants,	Day 1: Lab 2 Summary Day 2: Lab 3 Result Tables
7	June 17, 18	Lab 3: Transposon Mutagenesis	Lab 3: Amino Acid Pool Plates, Lac ⁻ Mutants onto Differential Media	Lab 3: Interpret Plates	Day 2:Lab 3 Result Tables
8	June 24, 25	Lab 4: Intracellular Invasion of Mammalian HEp-2 Cells by <i>E.coli</i>	Lab 4: Invasion Assay & Trypsinization	Lab 4: Count Plates, Look at Cells	Day 1: Lab 3 Summary
9	July 1, 2		No Labs - Reading Break	Quiz Labs 3 & 4	Day 2: Lab 4 Summary Day 2: Lab 5 Pre-lab Calculations
10	July 8, 9	Lab 5: Characterization & Classification of Salmonella LPS	Lab 5: Extract LPS, Serum Killing, prepare SDS-PAGE	Lab 5: SDS-PAGE, Analysis of Serum Killing Plates.	
11	July 15, 16	Lab 5: Characterization & Classification of Salmonella LPS	Lab 5: Western Transfer, Silver Stain	Lab 5: Western Detection	
12	July 22, 23				Day 1: Lab 5 Summary
13	July 29		Final Exam		

Evaluation

The final mark will be based on:

lab summaries	30%
lab journal	10%
practical assessment	10%
quizzes	15%
final exam	35%

Final grades will be strictly determined as follows:

90.00 - 100%	A+
85.00 - 89.99%	А
80.00 - 84.99%	A^{-}
77.00 – 79.99%	B+
73.00 – 76.99%	В
70.00 – 72.99%	B-
65.00 – 69.99%	C+
60.00 - 64.99%	С
50.00 - 59.99%	D
≤ 49.99%	F
≤ 49.99%	N*

*N is assigned if a student did not write the examination or complete course requirements by the end of the term or session. N is a failing grade, and it factors into a student's GPA as 0. The maximum percentage that can accompany an N on a student's transcript is 49.