

## Curriculum in Cell and Molecular Biology 2005

| <b>Date</b> | <b>Time</b> | <b>Room</b> | <b>Unit</b> | <b>Instructor</b> | <b>Lecture Title</b>  | <b>Reading</b>                              |
|-------------|-------------|-------------|-------------|-------------------|---|---|
| 8/29        | 9 AM        | W428        | Proteins    | Yee               | Chemical basis for protein structure and molecular interactions | 3:129-136, 157-158, 160-161                 |
| 8/29        | 10 AM       | W428        | Proteins    | Yee               | Chemical basis for protein structure and molecular interactions | 3:129-136, 157-158, 160-161                 |
| 8/30        | 9 AM        | BRB105      | Proteins    | Yee               | Protein structure-function I                                    | 3:136-157, 159-160, 175-187                 |
| 8/30        | 10 AM       | BRB105      | Methods     | Mieyal            | Protein Isolation and Characterization                          | 8:481-491                                   |
| 8/31        | 9 AM        | BRB105      | Proteins    | Yee               | Protein structure-function II                                   | 3:136-157, 159-160, 175-187                 |
| 8/31        | 10 AM       | BRB105      | Methods     | Samols            | Methods of Studying Protein-Protein Association                 | 518-523                                     |
| 9/1         | 9 AM        | BRB105      | Proteins    | Mieyal            | Kinetics and Thermodynamics I                                   | 3:162-174                                   |
| 9/1         | 10 AM       | BRB105      | Methods     | Samols            | Gels and restriction Enzymes                                    | 491-500                                     |
| 9/2         | 9 AM        | BRB105      | Proteins    | Mieyal            | Kinetics and Thermodynamics II                                  | 3:162-174                                   |
| 9/2         | 10 AM       | BRB105      | Proteins    | Mieyal            | Kinetics and Thermodynamics III                                 | 3:162-174                                   |
| 9/6         | 9 AM        |             | Proteins    | Discussion        |   |   |
| 9/7         | 9 AM        | BRB105      | DNA         | Matera            | Genome Organization and Transposition                           | 4:191-205, 5:285-293                        |
| 9/7         | 10 AM       | BRB105      | Methods     | Keri              | Blotting  | 485-500                                     |
| 9/8         | 9 AM        | BRB105      | DNA         | Matera            | Chromatin Packaging   | 5: 206-216                                  |
| 9/8         | 10 AM       | BRB105      | Methods     | Keri              | Microarrays   | 35-38; 375-379; 488-491; 533-535; 1337-1338 |
| 9/9         | 9 AM        | BRB105      | DNA         | Matera            | Chromosome Dynamics   | 5: 216-234                                  |
| 9/9         | 10 AM       | BRB105      | Methods     | Samols            | cDNA Cloning  | 501-513                                     |
| 9/12        | 9 AM        | BRB105      | DNA         | Luo               | DNA Replication   | Ch. 5                                       |
| 9/12        | 10 AM       | BRB105      | Methods     | Samols            | PCR and EMSA  | 391-393, 524                                |
| 9/13        | 9 AM        | BRB105      | DNA         | Luo               | DNA Repair  | Ch. 5                                       |

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|-------------|-------------|-------------|-------------------|-------------------|--|---|
| 9/13        | 10 AM       | BRB105      | Methods           | Keri              | Transfection and Transgenics                                     | 302-332; 375-379;<br>525-533; 535-545;<br>1341-1342 |
| 9/14        | 9 AM        | BRB105      | DNA               | Luo               | Recombination  | 275-285; 1130-1138                                  |
| 9/14        | 10 AM       | BRB105      | DNA               | Matera            | Telomeres and Telomerase   | 5: 263-266  |
| 9/15        | 9 AM        |             | DNA               | Discussion        |  |   |
| 9/16        | 9 AM        | W428        | DNA & Protein     | Review            |  |   |
| 9/19        | 9:30 AM     | E501        | DNA & Protein     | Exam              |  |   |
| 9/20        | 9 AM        | BRB105      | Gene Expression I | deHaseth          | Prokaryotic transcription: initiation                            | 299-316   |
| 9/20        | 10 AM       | BRB105      | Gene Expression I | deHaseth          | Prokaryotic transcription: elongation                            | "   |
| 9/21        | 9 AM        | BRB105      | Gene Expression I | deHaseth          | Prokaryotic transcription: termination                           | "   |
| 9/21        | 10 AM       | BRB105      | Gene Expression I | deHaseth          | Control of transcription initiation                              | 375-401   |
| 9/22        | 9 AM        | BRB105      | Gene Expression I | Schultz           | Introduction to eukaryotic regulation of gene expression         | 375-379   |
| 9/22        | 10 AM       | BRB105      | Gene Expression I | Kao               | DNA binding proteins   | 379-395   |
| 9/23        | 9 AM        | W428        | Gene Expression I | Kao               | chromatin structure and transcription regulation                 | 211-216   |
| 9/23        | 10 AM       | W428        | Gene Expression I | Kao               | techniques for studying transcription regulation                 | 400-401, 405-406,<br>410-411                        |
| 9/26        | 9 AM        |             | Gene Expression I | Discussion        |  |   |
| 9/27        | 9 AM        | BRB105      | Gene Expression I | Schultz           | Genetic switches and gene activation                             | 396-414   |
| 9/27        | 10 AM       | BRB105      | Gene Expression I | Schultz           | Genetic switches and gene activation                             | 396-414   |
| 9/28        | 9 AM        | BRB105      | Gene Expression I | Schultz           | Complex genetic switches and biology                             | 415-426   |
| 9/28        | 10 AM       | BRB105      | Gene Expression I | Harte             | Transcriptional regulation in development                        | 408-410; 426-427                                    |
| 9/29        | 9 AM        | BRB105      | Gene Expression I | Harte             | Transcriptional regulation in the formation of animal body plans | "   |

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|-------------|-------------|-------------|----------------------|-------------------|---|-------------------------|
| 9/29        | 10 AM       | BRB105      | Gene Expression I    | Harte             | Epigenetic inheritance of chromatin states: ensuring stable cell identities | 1157-1164; 1177-1196    |
| 9/30        | 9 AM        |             | Gene Expression I    | Discussion        |   |                         |
| 10/3        | 9 AM        | BRB105      | Gene Expression I    | Review            |   |                         |
| 10/4        | 9:30 AM     | E501        | Gene Expression I    | Exam              |   |                         |
| 10/5        | 9 AM        | BRB105      | Gene Expression II   | Wise              | RNA Processing Overview and Mechanisms of Splicing                          | 315-25; 329-35; 337-39  |
| 10/5        | 10 AM       | BRB105      | Gene Expression II   | "                 | "   |                         |
| 10/6        | 9 AM        | BRB105      | Gene Expression II   | Wise              | RNA Surveillance; Ribozymes and the RNA World                               | 448-51; 325-26; 346-348 |
| 10/6        | 10 AM       | BRB105      | Gene Expression II   | Lou               | RNA localization and Polyadenylation  | 442-45; 449-50          |
| 10/7        | 9 AM        | BRB105      | Gene Expression II   | Lou               | Alternative Splicing: Factors and Mechanisms                                | 435-40                  |
| 10/7        | 10 AM       | BRB105      | Gene Expression II   | "                 | "   |                         |
| 10/10       | 9 AM        | BRB105      | Gene Expression II   | Gott              | RNA Editing and RNA Interference  | 440-42; 451-52          |
| 10/10       | 10 AM       | BRB105      | Gene Expression II   | "                 | "   |                         |
| 10/11       | 9 AM        |             | Gene Expression II   | Discussion        |   |                         |
| 10/12       | 9 AM        | BRB105      | Gene Expression II   | Merrick           | Translation: Machinery and Mechanism  | 335-346, 348-354        |
| 10/12       | 10 AM       | BRB105      | Gene Expression II   | "                 | "   |                         |
| 10/13       | 9 AM        | BRB105      | Gene Expression II   | Merrick           | Regulation of Translation   | 445-452                 |
| 10/13       | 10 AM       | BRB105      | Gene Expression II   | "                 | "   |                         |
| 10/14       | 9 AM        | W428        | Gene Expression II   | Merrick           | Viruses and Post-translational Control                                      | 354-364                 |
| 10/14       | 10 AM       | W428        | Gene Expression II   | "                 | "   |                         |
| 10/17       | 9 AM        |             | Gene Expression II   | Discussion        |   |                         |
| 10/18       | 9 AM        | BRB105      | Gene Expression II   | Review            |   |                         |
| 10/19       | 9:30 AM     | E501        | Gene Expression II   | Exam              |   |                         |
| 10/20       | 9 AM        | W428        | Membranes/Organelles | Maguire           | The Membrane  | Ch. 10                  |

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|-------------|-------------|-------------|--|-------------------|---|------------------|
| 10/20       | 10 AM       | W428        | Methods                                    | Snider            | Cell Fractionation                              | 478-480          |
| 10/21       | 9 AM        | W428        | Membranes/Organelles                       | Maguire           | Membrane Lipids                                 | Ch. 10           |
| 10/21       | 10 AM       | W428        | Methods                                    | Matera            | Principles of Light Microscopy                  | Ch. 9            |
| 10/26       | 9 AM        | BRB105      | Membranes/Organelles                       | Maguire           | Membrane Proteins                               | Ch. 10           |
| 10/26       | 10 AM       | BRB105      | Methods                                    | Matera            | GFP and Live Cell Imaging                       | Ch. 9            |
| 10/27       | 9 AM        | BRB105      | Membranes/Organelles                       | Maguire           | Bioenergetics                                   | Ch. 11           |
| 10/27       | 10 AM       | BRB105      | Membranes/Organelles                       | Maguire           | Transport Proteins                              | Ch. 11           |
| 10/28       | 9 AM        | W428        | Membranes/Organelles                       | Maguire           | Energy and Transport Integration                | Ch. 11           |
| 10/28       | 10 AM       | W428        | Membranes/Organelles                       | Snider            | The secretory pathway                           | 701-709, 757-765 |
| 10/31       | 9 AM        | BRB105      | Membranes/Organelles                       | Snider            | The endocytic pathway                           | 746-757, 739-746 |
| 10/31       | 10 AM       | BRB105      | Membranes/Organelles                       | Snider            | Lysosomes and lysosomal biogenesis              | "                |
| 11/1        | 10 AM       |             | Membranes/Organelles                       | Discussion        |   |                  |
| 11/2        | 9 AM        | BRB105      | Membranes/Organelles                       | Snider            | Mechanisms of secretion and endocytosis         | 711-726          |
| 11/2        | 10 AM       | BRB105      | Membranes/Organelles                       | Tartakoff         | Nuclear Import and Export                       | 669-678          |
| 11/3        | 9 AM        | BRB105      | Membranes/Organelles                       | Tartakoff         | Nuclear Import and Export                       | "                |
| 11/3        | 10 AM       | BRB105      | Membranes/Organelles                       | Tartakoff         | Biogenesis of Mitochondria and Peroxisomes      | 678-688          |
| 11/4        | 9 AM        | W428        | Membranes/Organelles                       | Tartakoff         | Bacterial Secretion and Import into the ER      | 689-709          |
| 11/4        | 10 AM       | W428        | Membranes/Organelles                       | Tartakoff         | Bacterial Secretion and Import into the ER      | 689-709          |
| 11/7        | 9 AM        |             | Membranes/Organelles                       | Discussion        |   |                  |
| 11/8        | 9 AM        | BRB105      | Membranes/Organelles                       | Review            |   |                  |
| 11/9        | 9:30 AM     | E501        | Membranes/Organelles                       | Exam              |   |                  |
| 11/10       | 9 AM        | BRB105      | Cytoskeleton, Cell Division, Cell Adhesion | Muresan           | Microtubules: Structure and Dynamic Instability | 16:907-949       |

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|-------------|-------------|-------------|---|-------------------|--|----------------------|
| 11/10       | 10 AM       | BRB105      | Cytoskeleton, Cell Division,<br>Cell Adhesion | Muresan           | Microtubule Motors and Membrane<br>Trafficking               | 16:949-982           |
| 11/11       | 9 AM        | W428        | Cytoskeleton, Cell Division,<br>Cell Adhesion | Muresan           | Microtubules in Mitosis                                      | 17: 983-986, Ch. 18  |
| 11/11       | 10 AM       | W428        | Cytoskeleton, Cell Division,<br>Cell Adhesion | Muresan           | Microtubules, Signal Transduction, and<br>Disease            | Ch. 16               |
| 11/14       | 9 AM        | W428        | Cytoskeleton, Cell Division,<br>Cell Adhesion | Wang              | Introduction: Cytoskeleton in Cell<br>Adhesion and Migration | 907-928, Ch. 19      |
| 11/14       | 10 AM       | W428        | Cytoskeleton, Cell Division,<br>Cell Adhesion | Wang              | Dynamics of Actin Cytoskeleton                               | 929-947              |
| 11/15       | 9 AM        | BRB105      | Cytoskeleton, Cell Division,<br>Cell Adhesion | Wang              | Regulation of Actin Cytoskeleton                             | 947-979              |
| 11/15       | 10 AM       | BRB105      | Cytoskeleton, Cell Division,<br>Cell Adhesion | Wang              | Intermediate filaments                                       | 923-929, Ch. 19      |
| 11/16       | 9 AM        |             | Cytoskeleton, Cell Division,<br>Cell Adhesion | Discussion        |  |                      |
| 11/17       | 9 AM        | BRB105      | Cytoskeleton, Cell Division,<br>Cell Adhesion | Brady-Kalnay      | Cell Junctions   | 1065-1080            |
| 11/17       | 10 AM       | BRB105      | Cytoskeleton, Cell Division,<br>Cell Adhesion | Brady-Kalnay      | Cell-Cell Adhesion: Ig Superfamily and<br>Selectins          | 1080-1082, 1085-1090 |
| 11/18       | 9 AM        | W428        | Cytoskeleton, Cell Division,<br>Cell Adhesion | Brady-Kalnay      | Cell-Cell Adhesion: Cadherins                                | 1082-1085            |
| 11/18       | 10 AM       | W428        | Cytoskeleton, Cell Division,<br>Cell Adhesion | Brady-Kalnay      | Catenins   | "                    |
| 11/21       | 9 AM        | BRB105      | Cytoskeleton, Cell Division,<br>Cell Adhesion | Culp              | The Extracellular Matrix                                     | 1090-1113            |
| 11/21       | 10 AM       | BRB105      | Cytoskeleton, Cell Division,<br>Cell Adhesion | Culp              | Integrins  | 1113-1118            |
| 11/22       | 9 AM        |             | Cytoskeleton, Cell Division,<br>Cell Adhesion | Discussion        |  |                      |

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|-------------|-------------|-------------|--|-------------------|---|---------------------------|
| 11/23       | 10 AM       | BRB105      | Cytoskeleton, Cell Division, Cell Adhesion | Review            |   |                           |
| 11/28       | 9:30 AM     | E501        | Cytoskeleton, Cell Division, Cell Adhesion | Exam              |   |                           |
| 11/29       | 9 AM        | BRB105      | Cell Cycle and Cell Signaling              | Viollier          | Signaling in Bacteria                   |                           |
| 11/29       | 10 AM       | BRB105      | Cell Cycle and Cell Signaling              | Viollier          | "                                       |                           |
| 11/30       | 9 AM        | BRB105      | Cell Cycle and Cell Signaling              | Dubyak            | G protein Coupled Receptors             | 15: 15: 831-852 & 852-871 |
| 11/30       | 10 AM       | BRB105      | Cell Cycle and Cell Signaling              | Dubyak            | "                                       |                           |
| 12/1        | 9 AM        | BRB105      | Cell Cycle and Cell Signaling              | Miller            | Growth Factor & Cytokine Signaling      | 871-893                   |
| 12/1        | 10 AM       | BRB105      | Cell Cycle and Cell Signaling              | Miller            | "                                       |                           |
| 12/2        | 9 AM        | W428        | Cell Cycle and Cell Signaling              | Miller            | Developmental Signaling Pathways        | 893-900                   |
| 12/2        | 10 AM       | W428        | Cell Cycle and Cell Signaling              | Miller            | "                                       |                           |
| 12/5        | 9 AM        |             | Cell Cycle and Cell Signaling              | Discussion        |   |                           |
| 12/6        | 9 AM        | BRB105      | Cell Cycle and Cell Signaling              | Howe              | Components of Cell Cycle Control        | 17:983-1010               |
| 12/6        | 10 AM       | BRB105      | Cell Cycle and Cell Signaling              | Howe              | "                                       |                           |
| 12/7        | 9 AM        | BRB105      | Cell Cycle and Cell Signaling              | Howe              | Checkpoint Control of the Cell Cycle    | 17: 983-1010, 6: 358-362  |
| 12/7        | 10 AM       | BRB105      | Cell Cycle and Cell Signaling              | Howe              | "                                       |                           |
| 12/8        | 9 AM        | BRB105      | Cell Cycle and Cell Signaling              | Culp              | Mechanisms of Cell Death                | 1010-1014                 |
| 12/8        | 10 AM       | BRB105      | Cell Cycle and Cell Signaling              | Culp              | "                                       |                           |
| 12/9        | 9 AM        | W428        | Cell Cycle and Cell Signaling              | Culp              | Control of Division, Growth & Apoptosis | 1014-1025                 |
| 12/9        | 10 AM       | W428        | Cell Cycle and Cell Signaling              | Culp              | "                                       |                           |
| 12/12       | 10 AM       | BRB105      | Cell Cycle and Cell Signaling              | Review            |   |                           |
| 12/15       | 9:30 AM     | E501        | Cell Cycle and Cell Signaling              | Exam              |   |                           |