Laboratory Requirement

The Institute Laboratory Requirement consists of subjects that require a major commitment of the student’s attention in comprehensive projects rather than stand-alone experiments or exercises. The primary emphasis of an Institute Laboratory subject is to stimulate a student’s resourcefulness, planning skills, and analysis of observations. Institute Laboratory subjects combine ideas, methods and techniques that would be familiar to a professional in the subject’s discipline. While a Laboratory subject may teach specific techniques, the techniques themselves are not the primary emphasis. Under faculty supervision, the student is responsible for planning and designing the experiments or projects, including selecting measurement techniques, executing the plan, analyzing results, and presenting their conclusions. Details of the elements that comprise an Institute Laboratory subject differ between disciplines.

The Laboratory Requirement is met by successfully completing subjects designed and approved for this purpose. Each Institute Laboratory subject provides a designated number of units toward the Laboratory Requirement. Such subjects may be taken in any combination to fulfill the Requirement so long as the student completes 12 units in sum designated as counting towards the Laboratory Requirement. Any units taken as part of these subjects beyond the 12 needed for completion of the Laboratory Requirement will be counted as units beyond the GIRs. At least a portion of the Laboratory Requirement is suggested to be fulfilled in the first two years.

Laboratory Requirement Subjects

1.101 Introduction to Civil and Environmental Engineering Design I 6
1.102 Introduction to Civil and Environmental Engineering Design II 6
1.106 Environmental Fluid Transport Processes and Hydrology Laboratory 6
1.107 Environmental Chemistry Laboratory 6
2.008 Design and Manufacturing II (6 units of laboratory credit) 12
2.017[J] Design of Electromechanical Robotic Systems (6 units of laboratory credit) 12
2.671 Measurement and Instrumentation 12
3.010 Structure of Materials 12
3.014 Materials Laboratory 12
4.411[J] D-Lab Schools: Building Technology Laboratory 12
5.310 Laboratory Chemistry 12
5.351 Fundamentals of Spectroscopy 4
5.352 Synthesis of Coordination Compounds and Kinetics 5
5.353 Macromolecular Prodrugs 4
5.363 Organic Structure Determination 4
6.008 Introduction to Inference 12
6.009 Fundamentals of Programming 12
6.01 Introduction to EECS via Robotics 12
6.02 Introduction to EECS via Communication Networks 12
6.03 Introduction to EECS via Medical Technology 12
6.08 Introduction to EECS via Interconnected Embedded Systems 12
6.101 Introductory Analog Electronics Laboratory 12
6.11 Introductory Digital Systems Laboratory 12
6.115 Microcomputer Project Laboratory 12
6.129[J] Biological Circuit Engineering Laboratory 12
6.131 Power Electronics Laboratory 12
6.161 Modern Optics Project Laboratory 12
6.163 Strobe Project Laboratory 12
6.182 Psychoacoustics Project Laboratory 12
7.002 Fundamentals of Experimental Molecular Biology 6
7.003[J] Applied Molecular Biology Laboratory (6 units of laboratory credit) 12
7.102 Introduction to Molecular Biology Techniques 6
8.13 Experimental Physics I (12 units of laboratory credit) 18
9.12 Experimental Molecular Neurobiology 12
9.17 Systems Neuroscience Laboratory 12
9.59[J] Laboratory in Psycholinguistics 12
9.60 Machine-Motivated Human Vision 12
11.188 Urban Planning and Social Science Laboratory 12
12.110A Sedimentary Environments 6
12.110B Sedimentology in the Field 9
12.115 Field Geology 9
12.116 Analysis of Geologic Data (3 units of laboratory credit) 6
12.307 Weather and Climate Laboratory (12 units of laboratory credit) 12
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tr>
<td>12.335</td>
<td>Experimental Atmospheric Chemistry</td>
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<td>12.373</td>
<td>Field Oceanography (12 units of laboratory credit)</td>
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<td>12.410[J]</td>
<td>Observational Techniques of Optical Astronomy (12 units of laboratory credit)</td>
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<td>14.32</td>
<td>Econometric Data Science</td>
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<tr>
<td>15.075[J]</td>
<td>Statistical Thinking and Data Analysis</td>
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<td>15.301</td>
<td>People, Teams, and Organizations Laboratory (12 units of laboratory credit)</td>
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<td>15.417</td>
<td>Laboratory in Investments (12 units of laboratory credit)</td>
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<td>15.418</td>
<td>Laboratory in Corporate Finance (12 units of laboratory credit)</td>
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<td>Experimental Projects II</td>
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<td>16.821</td>
<td>Flight Vehicle Development (12 units of laboratory credit)</td>
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<td>16.831[J]</td>
<td>Space Systems Development (12 units of laboratory credit)</td>
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<td>Project Laboratory in Mathematics</td>
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<td>20.109</td>
<td>Laboratory Fundamentals in Biological Engineering (12 units of laboratory credit)</td>
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<td>22.09</td>
<td>Principles of Nuclear Radiation Measurement and Protection (12 units of laboratory credit)</td>
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<td>24.909</td>
<td>Field Methods in Linguistics</td>
<td>12</td>
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