

## GENERAL INSTITUTE REQUIREMENTS

### 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
1.104	Sensing and Intelligent Systems	6
1.106	Environmental Fluid Mechanics Lab	6
1.107	Environmental Chemistry Laboratory	6
1.108	Climate and Sustainability Lab	12
2.008	Design and Manufacturing II (6 units of laboratory credit)	12
2.017[[]]	Design of Electromechanical Robotic Systems (6 units of laboratory credit)	12
2.124[[]]	Robotics: Science and Systems	12
2.671	Measurement and Instrumentation	12
3.010	Structure of Materials	12
4.411[[]]	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
6.1010	Fundamentals of Programming	12
6.2040	Analog Electronics Laboratory	12
6.2050	Digital Systems Laboratory	12
6.2060	Microcomputer Project Laboratory	12
6.2220	Power Electronics Laboratory	12
6.2370	Modern Optics Project Laboratory	12
6.3100	Dynamical System Modeling and Control Design	12
6.3400	Introduction to EECS via Communication Networks	12
6.3800	Introduction to Inference	12
6.4200[[]]	Robotics: Science and Systems	12
6.4900	Introduction to EECS via Medical Technology	12
6.9010	Introduction to EECS via Interconnected Embedded Systems	12
6.9030	Strobe Project Laboratory	12
6.9080	Introduction to EECS via Robotics	12
7.002	Fundamentals of Experimental Molecular Biology	6
7.003[[]]	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[[]]	Laboratory in Psycholinguistics	12
9.60	Machine-Motivated Human Vision	12
11.188	Introduction to Spatial Analysis and GIS 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
12.314[[]]	Ocean Chemistry Change Laboratory (3 units of laboratory credit)	6

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12.335	Experimental Atmospheric Chemistry	12
12.373	Field Oceanography (12 units of laboratory credit)	15
12.410[J]	Observational Techniques of Optical Astronomy (12 units of laboratory credit)	15
14.32	Econometric Data Science	12
15.075[[]]	Statistical Thinking and Data Analysis	12
15.076	Analytics for a Better World	12
15.301	People, Teams, and Organizations Laboratory (12 units of laboratory credit)	15
15.417	Laboratory in Investments (12 units of laboratory credit)	15
15.418	Laboratory in Corporate Finance (12 units of laboratory credit)	15
16.821	Flight Vehicle Development (12 units of laboratory credit)	18
16.831[[]]	Space Systems Development (12 units of laboratory credit)	18
17.803	Political Science Laboratory (12 units of laboratory credit)	15
18.821	Project Laboratory in Mathematics	12
20.109	Laboratory Fundamentals in Biological Engineering (12 units of laboratory credit)	15
20.129[[]]	Biological Circuit Engineering Laboratory	12
21H.090	Digital Humanities Laboratory	12
22.09	Principles of Nuclear Radiation Measurement and Protection (12 units of laboratory credit)	15
24.909	Field Methods in Linguistics	12