



Course Syllabus

2003 Summer Short Course: Basic Biology for Engineers

Held: August 11-16, 2003
Location: NASA Ames Research Center
Moffett Training and Conference Center

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| Monday | UNIT 1: General Space Biology Overview (Introduction) |
| | Introduction, <i>Dr. Maurice Averner</i> |
| | 1.1 Origin and Evolution of Life, <i>Dr. David Des Marais</i> |
| | 1.2 Basic Properties of Living Systems & Biological Response to Spaceflight, <i>Dr. Emily Holton</i> |
| | 1.3 Characteristics of an Experiment, <i>Dr. Charles Wade</i> |
| | 1.4 Past Equipment and Experience, <i>Mr. Jim Connolly</i> |
| | 1.5 Engineering Challenges in Incorporating Life Sciences Experiments into Flight Hardware, <i>Dr. George Sarver</i> |
| 1.6 Plans for Advanced Technology Biological and Biomedical Requirements, <i>Mr. John Hines</i> | |
| <i>Welcome Reception – Building 244 2nd Floor – C.A.M. Tour</i> | |
| Tuesday | UNIT 2: Microbiology |
| | 2.1 Extremophiles, <i>Dr. Jonathan Trent</i> |
| | 2.2 Microbial Mat Ecology, <i>Dr. Lee Bebout</i> |
| | 2.3 Lab Exercise |
| Wednesday | UNIT 3: Cell Biology |
| | 3.1 Cell Biology, <i>Dr. Eduardo Almeida</i> |
| | 3.2 Cell Biology: Considerations for Hardware Development, <i>Dr. Nancy Searby</i> |
| | 3.3 Lab Exercise |
| <i>Dinner Banquet with Featured Speaker - Dr. David Morrison</i> | |
| Thursday | UNIT 4: Nematodes and Insects |
| | 4.1 <i>D. melanogaster</i> Biology, <i>Dr. Sharmila Bhattacharya</i> |
| | 4.2 <i>C. elegans</i> Biology, <i>Dr. Nate Szewczyk</i> |
| | 4.3 Lab Exercise |
| Friday | UNIT 5: Plant Biology |
| | 5.1 Plant Biology: Advanced Life Support, <i>Dr. Gerard Heyenga</i> |
| | 5.2 Plant Biology: Considerations for Hardware Development, <i>Dr. Bob Bowman</i> |
| | 5.3 Lab Exercise |
| Saturday | UNIT 6: Rodents |
| | 6.1 Rodent Physiology, <i>Dr. Charles Wade (developed by Dr. Richard Grindeland)</i> |
| | 6.2 Reproduction and Development in Hypo- and Hypergravity, <i>Dr. April Ronca</i> |
| | 6.3 Lab Exercise |