**Table of Contents and Schedule of Presentations**

|  |  |
| --- | --- |
| NTC | Ted Carnevale |
| MLH | Michael Hines |
| WWL | Bill Lytton |
| AM | Amit Majumdar |
| RMcD | Robert McDougal |

Hands-on exercises are indicated by an asterisk \* in the Page column.   
Times shown are approximate, except for lunch.

**Monday, 6/20 Morning session**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time** | **Speaker** | **Title** | **Page** |
| 9:00 AM | NTC | Welcome to the NEURON summer course | 5 |
|  |  | Installing and configuring NEURON |  |
|  | NTC | Introduction to modeling | 7 |
|  |  | GUI: building and using a simple model | 9 \* |
|  |  | Neurites, cables, and sections | 11 |
| 10:30 | Coffee Break | | |
| 10:45 | NTC | Interactive modeling: Hodgkin-Huxley axon | 13 \* |
| 11:45 | NTC | Range, range variables, nodes, and nseg | 15 |
| 12:00 | NTC | Constructing branched model cells  with the CellBuilder | 19 \* |

|  |  |
| --- | --- |
| 12:30 | Lunch |

**Afternoon session**

|  |  |  |  |
| --- | --- | --- | --- |
| 1:30 | NTC | Constructing branched model cells  with the CellBuilder *continued* | 19 \* |
| 2:00 | NTC | Working with morphometric data | 21 \* |
| 3:00 | Free time | | |
| 4:30 | Daily wrapup | | |
| 5:00 | End of afternoon session | | |

**Tuesday, 6/21 Morning session**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time** | **Speaker** | **Title** | **Page** |
| 9:00 AM | Q & A |  |  |
| 9:15 | WWL or NTC | The hoc programming language | 27 |
| 10:30 | Coffee Break | | |
| 10:45 | RMcD | ModelDB and Model View | 43 \* |
| 11:30 | MLH | Channel Builder | 57 |

|  |  |
| --- | --- |
| 12:30 |  |

**Afternoon session**

|  |  |  |  |
| --- | --- | --- | --- |
| 1:30 | MLH | Numerical methods: accuracy, stability, speed | 49 |
| 2:30 | MLH | NMODL: the NEURON Model Description Language | 67 \* |
| 3:30 | Free time | | |
| 4:30 | Daily wrapup | | |
| 5:00 | End of afternoon session | | |

**Wednesday, 6/22 Morning session**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time** | **Speaker** | **Title** | **Page** |
| 9:00 AM | Q & A |  |  |
| 9:15 | NTC | Inhomogeneous channel distributions | 25 \* |
| 10:30 | Coffee Break | | |
| 10:45 | WWL or RMcD | Python + NEURON | 75 \* |
| 11:15 | RMcD | Reactive diffusion | 91 \* |

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| --- | --- |
| 12:30 | Lunch |

**Afternoon session**

|  |  |  |  |
| --- | --- | --- | --- |
| 1:30 | NTC | Networks: synapses, events,  and artificial spiking cells | 107 \* |
| 3:00 | Free time | | |
| 4:30 | Daily wrapup | | |
| 5:00 | End of afternoon session | | |

**Thursday, 6/23 Morning session**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time** | **Speaker** | **Title** | **Page** |
| 9:00 AM | Q & A |  |  |
| 9:15 | MLH | Variable time steps  and parameter discontinuities | 119 \* |
| 10:30 | Coffee Break | | |
| 10:45 | MLH | Threads | 143 \* |

|  |  |
| --- | --- |
| 12:30 | Lunch |

**Afternoon session**

|  |  |  |  |
| --- | --- | --- | --- |
| 1:30 | WWL | Inhibitory synchronizing networks | 163 \* |
| 3:00 | Free time | | |
| 4:30 | Daily wrapup | | |
| 5:00 | End of afternoon session | | |

**Friday, 6/24 Morning session**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time** | **Speaker** | **Title** | **Page** |
| 9:00 AM | Q & A |  |  |
| 9:15 | NTC | Initialization | 155 \* |
| 10:30 | Coffee Break | | |
| 10:45 | MLH | Parallel computation: distributed network models | 187 \* |

|  |  |
| --- | --- |
| 12:30 | Lunch |

**Afternoon session**

|  |  |  |  |
| --- | --- | --- | --- |
| 1:30 | AM | High performance computing via the Neuroscience Gateway Portal | 205 \* |
| 3:00 | Free time | | |
| 4:30 | Wrapup, review, and evaluation (see last page in this booklet) | | |
| 5:00 | End of afternoon session | | |

**Evening sessions and other material**

|  |  |  |  |
| --- | --- | --- | --- |
|  | NTC | Overview of creating and using  NEURON models | 217 |
|  | MLH | Ion accumulation mechanisms: a calcium pump | 223 \* |
|  | MLH | Families of simulations in parallel | 227 \* |
|  | NTC | The Impedance Tools | 233 \* |
|  | NTC | Linear Circuit Builder | 241 \* |
|  | WWL | NetPyNE ?? |  |
| Appendix | Translating network models to parallel hardware  in NEURON (Hines & Carnevale 2008).  NEURON and Python (Hines et al. 2009). | | before survey |
| **Receipt** | **penultimate page** | | |
| **Survey** |  | **last page** | |