
0. Sunday August 5, 2018 Python

- 9:00 – 10:30 Welcome, (James A Glazier), Python Training I (Andy Somogyi)
Python installation + programming concepts
- 10:30 – 10:45 Break
- 10:45 – 12:15 Python Basics (Andy Somogyi)
- 12:15 – 1:00 Lunch [provided]
- 1:00 – 2:30 Python functions and file management (Andy Somogyi)
- 2:30 – 2:45 Break
- 2:45 – 4:15 Python examples and exercises (Andy Somogyi)
- 4:15 – 4:30 Break
- 4:30 – 6:00 Python examples and exercises (Andy Somogyi)
After Class—Start Installing CC3D and TELLURIUM on people's computers
[Dinner on your own]
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1. Monday August 6, 2018 Modeling Biological Networks w/ ODEs & SBML

- 9:00 – 10:30 Welcome and Intro to Modeling (James A Glazier)
- 10:30 – 10:45 Break
- 10:45 – 12:15 Install Tellurium + introduction to modeling networks/SBML (Herbert Sauro)
- 12:15 – 1:00 Lunch [provided]—Three mini-presentations during lunch (~10 minutes each)
- 1:00 – 2:30 SBML and Biomodels (Herbert Sauro)
- 2:30 – 2:45 Break
- 2:45 – 4:15 Simulation exercises (Herbert Sauro)
- 4:15 – 4:30 Break
- 4:30 – 6:00 Simulation exercises (Herbert Sauro)
- 6:15 Group Dinner [at participant expense, location to be announced]
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2. Tuesday August 7, 2018 SBML

- 9:00 – 10:30 PBPK modeling using SBML (Jim Sluka)
- 10:30 – 10:45 Break
- 10:45 – 12:15 PBPK—SBML parameter fitting, parameter sensitivity (Jim Sluka)
- 12:15 – 1:00 Lunch [provided]—Three mini-presentations during lunch (~10 minutes each)
- 1:00 – 2:30 Parameter fitting using Tellurium/Python (Herbert Sauro)
- 2:30 – 2:45 Break
- 2:45 – 4:15 Common motifs found in cellular networks (Herbert Sauro)
- 4:15 – 4:30 Break
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4:30 – 6:00 Introduction to Multiscale Modelling - James A. Glazier

[Dinner on your own]

3. Wednesday August 8, 2018 Introduction To CC3D

9:00 – 10:30 CC3D background + Twedit++. Understanding the structure of CC3D simulations (Maciek Swat)

10:30 – 10:45 Break

10:45 – 12:15 Understanding cell adhesion - cell sorting simulations (Maciek Swat)

12:15 – 1:00 Lunch [provided]—Three mini-presentations during lunch (~10 minutes each)

1:00 – 2:30 Getting comfortable with CC3D Python scripting - understanding cell attributes, file I/O . etc...

2:30 – 2:45 Break

2:45 – 4.15 Growth + mitosis. (Maciek Swat)

4:15 – 4.30 Break

4:30 – 6.00 Tutorials plus 1:1 sessions (Maciek Swat)

[Dinner on your own]

4. Thursday August 9, 2018 Intermediate CC3D

9:00 –10:30 Chemotaxis, chemical fields, custom field visualizations etc. (Maciek Swat)

10:30–10:45 Break

10:45–12:15 Cellular Links + introduction to compartmentalized cells (Maciek Swat)

12:15–1:00 Lunch [provided]—Three mini-presentations during lunch (~10 minutes each)

1:00 - 2:30 From single cell to vascularized tumor - exercise in planning and building multi-cell simulation (Maciek Swat)

2:30 – 2:45 Break

2:45 –4:15 Linking SMBL to CC3D (Jim Sluka/James Glazier)

4:15 – 4:30 Break

4:30 – 6:00 Demos + exercises with SBML Jim Sluka/James Glazier)

[Dinner on your own]

5. Friday August 10, 2018 CC3D in practice

9:00 – 10:30 Cancer stem cells (Gilberto Thomas)

10:30 – 10:45 Break

10:45 – 12:15 Deep cell movement and CE (Juliano)

12:15 – 1:00 Lunch [provided]—Three mini-presentations during lunch (~10 minutes each)

1:00 – 2:30 Cell compartments and epithelial folding (James Glazier)

2:30 – 2:45 Break

2:45 – 4:15 Convergent Extension Simulations (James Glazier/Maciek Swat)

4:15 – 4:30 Break

4:30 – 6:00 Demos + open discussion (Julio Belmonte)

6:15 Optional Group Dinner and Drinks [at participant expense, location to be announced]

6. Saturday Aug 11, 2018 Private tutorials and collaborations

Held in Simon Hall 047—Contact Somogyi, Belmonte and Glazier for access information

9:00 – 4:00 Start, flexible schedule for the rest of the day

[Meals on your own]

Course Instructors

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