# 0. Sunday July 30, 2017 Python

9:00 – 10:30 Welcome, (James A Glazier), Python Training I (Andy Somogyi)  
Python installation + programing 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 COPASI on people’s computers

[Dinner on your own]

# 1. Monday July 31, 2017 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 COPASI + intro networks/SBML (Andy Somogyi)

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

1:00 – 2:30 ODEs (Andy Somogyi)

2:30 – 2:45 Break

2:45 – 4:15 ODEs analysis (Andy Somogyi)

4:15 – 4:30 Break

4:30 – 6:00 ODEs analysis (Andy Somogyi)

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

# 2. Tuesday Aug 1, 2017 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 CC3D background + Twedit++ and cell sorting (Julio Belmonte)

2:30 – 2:45 Break

2:45 – 4:15 Cell sorting + plots (Julio Belmonte)

4:15 – 4:30 Break

4:30 – 6:00 Basic CompuCell3D model definition (Julio Belmonte)

[Dinner on your own]

# 3. Wednesday Aug 2, 2017 Mitosis + CC3D-SBML integration

9:00 – 10:30 Growth + mitosis (Julio Belmonte)

10:30 – 10:45 Break

10:45 – 12:15 Demo: Intestinal crypt (Julio Belmonte)

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

1:00 – 2:30 Linking SMBL to CC3D (Julio Belmonte)

2:30 – 2:45 Break

2:45 – 4:15 Demos + exercises with SBML (Julio Belmonte)

4:15 – 4:30 Break

4:30 – 6:00 Demos + exercises with SBML (Julio Belmonte)

[Dinner on your own]

# 4. Thursday Aug 3, 2017 Links/Compartments

9:00 – 10:30 Intro to Links (Julio Belmonte)

10:30 – 10:45 Break

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

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

1:00 – 2:30 Cell compartments and epithelial folding (Julio Belmonte)

2:30 – 2:45 Break

2:45 – 4:15 Gradients (Julio Belmonte)

4:15 – 4:30 Break

4:30 – 6:00 Demos + exercises with gradients (Julio Belmonte)

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

# 5. Friday Aug 4, 2017 CC3D finish & Exercises/Projects

9:00 – 10:30 Cancer stem cells (Julio Belmonte)

10:30 – 10:45 Break

10:45 – 12:15 Assign projects (Julio Belmonte)

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

1:00 – 2:30 Demos + exercises with CC3D (Julio Belmonte)

2:30 – 2:45 Break

2:45 – 4:15 Demos + exercises with CC3D (Julio Belmonte)

4:15 – 4:30 Break

4:30 – 6:00 Demos + exercises with CC3D (Julio Belmonte)

# 6. Saturday Aug 5, 2017 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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| Priyom Adhyapok | padhyapo@umail.iu.edu | James A Glazier | jaglazier@gmail.com | (812) 391-2159 |
| Julio M Belmonte | julio.belmonte@embl.de | James P Sluka | jsluka@indiana.edu | (317) 331-7465 |
| Gilberto L Thomas | glt@if.ufrgs.br | Andy Somogyi | somogyie@umail.iu.edu | (812) 327-4357 |