NIMBioS Tutorial:
Algebraic and Discrete Biological Models for Undergraduate Courses
June 18-20, 2014

Tuesday, June 17

Participants Arrive

Wednesday, June 18

8:00 – 8:45 Breakfast at NIMBioS

8:45 – 9:00 Welcome from NIMBioS

9:00 – 9:30 Introductions

9:30-10:15 Lecture: Why Use Algebraic Models (Robeva)

10:15 – 10:30 Coffee break

10:45 – 12:00 Lecture: Modeling Gene Regulation with Boolean Networks (Part I) (Robeva, Davies)

12:00 – 12:45 Lunch at NIMBioS

12:45 – 2:15 Lab/Hands-on activities: Boolean Network Models I

2:15 – 3:30 Lecture: Boolean Network Models (Part II) (Macauley, Davies)

3:30 – 3:45 Coffee break / Informal discussions

3:45 – 5:00 Lab/Hands-on activities: Boolean Network Models (Part II)

5:00 – Reception at NIMBioS

Thursday, June 19

8:00 – 9:00 Breakfast at NIMBioS

9:00 – 10:15 Lecture: Geometric Approaches to Phylogenetic Tree Reconstruction (Hodge, Davies)

10:15 – 10:30 Coffee break

10:30 – 12:00 Lab/Hands-on activities: Phylogenetic Tree Reconstruction

12:00 – 1:00 Lunch at NIMBioS

1:00 – 2:15 Lecture: Identifying CpG Islands Using Hidden Markov Models (Robeva, Davies)

2:15 – 3:45 Lab/Hands-on activities: CpG Islands

3:45 – 4:00 Coffee break / Informal discussions

3:45 – 5:00 Lecture: Combinatorial Approaches to RNA Folding (Macauley, Davies)

5:00 – 6:30 Lab/Hands-on activities: RNA Folding

6:30 – 7:30 Dinner at NIMBioS

Friday, June 20

8:00 – 9:00 Breakfast at NIMBioS

9:00 – 10:15 Lecture: Metabolic Pathways Analysis: A Linear Algebraic Approach (Hodge, Davies)

10:15 – 10:45 Coffee break / Informal discussions

10:30 – 12:00 Lab/Hands-on activities: Metabolic Pathways Analysis

12:00 – 1:00 Lunch at NIMBioS

1:00 – 2:15 Concurrent Level II Lectures (Follow up lectures on topics already featured in earlier presentations. Participants will state their preferences for topics and up to three topics will be covered in more depth and detail.)

2:15 – 3:45 Concurrent Level II Labs/Hands-on activities (follow up labs to the topics selected above)

3:45 – 4:00 Coffee break

4:00 – 5:30 Discussion: Curricular Models and Resources; Conclusions/Feedback

Saturday, June 21

Departure