Schedule
2004 BioQUEST Workshop:
Systems Biology Education

Saturday, June 12

Noon
Welcome, Introductions, and Overview
John R. Jungck, Workshop Director
Ruth Peterson Room

12:30 PM
BioQUEST Philosophy
Ethel Stanley, Director, BioQUEST Curriculum Consortium
Ruth Peterson Room

1:00-2:00 PM
Systems Biology
Herbert Sauro, Keck Graduate Institute
Ruth Peterson Room

2:00-2:20 PM
Break

Phase I
During this phase, participants take on the role of students while exploring systems biology at the molecular, cellular, physiological, organismal, and ecological levels. Based on these explorations, participants will develop and present team projects.

2:20-3:30 PM
Systems Biology Education

Session A
Group 1: JDesigner
Herb Sauro, Keck Graduate Institute
Anton Weisstein, Bioinformatics Research Associate
Anna Farbotko, Student Assistant
Chamberlin 202

Group 2: GenMAPP
Kam Dahlquist, Vassar College
Sam Donovan, Director of BEDROCK
Brandi Beals, Student Assistant
Chamberlin 208
Saturday, June 12

3:40-4:50 PM  Session B  
Group 1: GenMAPP  
Kam Dahlquist, Vassar College  
Sam Donovan, Director of BEDROCK  
Brandi Beals, Student Assistant  
Group 2: BioGrapher & javaBENZER  
Rama Viswanathan, Beloit College  
Tia Johnson, Assistant Director of BEDROCK  
John Jungck, Workshop Director  
Amber Blythe, Student Assistant  

Chamberlin 208

5:00-6:10 PM  Session C  
Group 1: BioGrapher & javaBENZER  
Rama Viswanathan, Beloit College  
Tia Johnson, Assistant Director of BEDROCK  
John Jungck, Workshop Director  
Amber Blythe, Student Assistant  

Group 2: JDesigner  
Herb Sauro, Keck Graduate Institute  
Anton Weisstein, Bioinformatics Research Associate  
Brandi Beals, Student Assistant  

Chamberlin 214

Chamberlin 202

6:30 PM  Wine and hors d'oeuvres  
Presidents Dining Room, Commons

7:00 PM  Dinner  
Presidents Dining Room, Commons

8:00 PM  A piece of the physiome project: The “Eternal Cell”  
James B. Bassingthwaighte, University of Washington  

Sunday, June 13

8:00 AM  Continental breakfast  
Café Bio, Chamberlin 215

9:00-12:00 PM  Systems Biology Education  
Session D: Physiome  
Groups 1 and 2  
James B. Bassingthwaighte, University of Washington  
Sam Donovan, Director of BEDROCK  
Anton Weisstein, Bioinformatics Research Associate  

Ruth Peterson Room
Sunday, June 13

12:00-2:00 PM Lunch and free time Commons

2:00-3:30 PM Systems Biology Education Session E
Group 1: Ecosystem Science Ruth Peterson Room
Robin Greenler, Editor, The BioQUEST Notes
John Greenler, Biocomplexity Project
Geni Werner, Student Assistant

Group 2: Systems Ecology Chamberlin 202
Stacey Kiser, BQ Staff & Lane Community College
Ethel Stanley, Director of BioQUEST
Brandi Beals, Student Assistant

3:30-5:00 PM Systems Biology Education Session F
Group 1: Systems Ecology Chamberlin 202
Stacey Kiser, BQ Staff & Lane Community College
Ethel Stanley, Director of BioQUEST
Brandi Beals, Student Assistant

Group 2: Ecosystem Science Ruth Peterson Room
Robin Greenler, Editor, The BioQUEST Notes
John Greenler, Biocomplexity Project
Geni Werner, Student Assistant

5:00 PM Dinner Commons

6:30-9:00 PM Mini project work session Chamberlin 202, 208, 214

Monday, June 14

8:00 AM Breakfast Commons

9:00-9:45 AM Introduction to BEDROCK Ruth Peterson Room
Sam Donovan, Director of BEDROCK

9:45-10:30 AM Molecular Phylogenetics Ruth Peterson Room
Anton Weisstein, Bioinformatics Research Associate

10:30-11:00 AM Break

11:00-12:00 PM Mini project work session Chamberlin 202, 208, 214

12:00-1:00 PM Lunch Commons

1:00-4:00 PM Mini project work session Chamberlin 202, 208, 214

4:00-5:35 PM Mini project poster presentation Pearsons Dining Hall
Monday, June 14

5:45 PM  Dinner  Commons

<table>
<thead>
<tr>
<th>Phase II</th>
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<tbody>
<tr>
<td>During the second phase of the workshop participants take on the role of adopters, adapters, and reviewers to consider the potential of existing materials and tools.</td>
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7:30-9:00 PM  Overview of group project, materials development and expanded individual introductions  2nd floor Pearsons

Tuesday, June 15

8:00 AM  Breakfast  Commons

9:00-9:30 AM  Introduction to Biology Workbench Activity: 1 Cell, 3 Genomes  Wood Room

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BioQUEST  Tuesday, June 15  Commons

9:45-11:30 AM  Hands-on Exploration using Biology Workbench  Chamberlin 208

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Anton Weisstein, Bioinformatics Research Associate  Chamberlin 202

11:30-NOON  The Phylogenetic Tree Constructor - a web-based interface for constructing phylogenetic trees  Ruth Peterson Room

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12:00-1:00 PM  Lunch  Commons

1:00-2:00 PM  Challenging Conceptions of Systems Biology Education  Mathers Room in Pearsons

| John Jungck, Workshop Director |
| Ethel Stanley, Director, BioQUEST Curriculum Consortium |
| 1:00-2:00 PM  Challenging Conceptions of Systems Biology Education  Mathers Room in Pearsons |
| John Jungck, Workshop Director |
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2:00-5:30 PM  Group formation and resource exploration  Ruth Peterson Room

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| 3:30-4:00 PM  7:30-8:00 PM |
| 4:00-4:30 PM  8:00-8:30 PM |
| 4:30-5:00 PM  8:30-9:00 PM |
| 5:00-5:30 PM  9:00-9:30 PM |

5:30-6:30 PM  Dinner  Commons

6:30-7:30 PM  Emerging Diseases  Ruth Peterson Room

Marion Fass, Beloit College

6:30-9:30 PM  Resource exploration and meetings with BioQUEST staff (continued)  Ruth Peterson Room

Chamberlin 202, 208, 214, 218

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Wednesday, June 16

8:00 AM  Breakfast  Commons

9:00-11:00 AM  The Complexity of HIV/AIDS—Where Politics Meet Biology  Mathers Room in Pearsons
Marion Fass, Beloit College

11:00-2:00 PM  Lunch and Free Time  Lunch on your own. Participants encouraged to explore Beloit

2:00-3:30 PM  Group project work session  Chamberlin Computer Labs
BioQUEST Staff available for consultation
Group 1: Group project work session, continued  Ruth Peterson Room
Group 2: BioQUEST software laboratory

3:30-4:00 PM  Break

4:00-5:30 PM  Group 1: BioQUEST software laboratory  Ruth Peterson Room
Group 2: Group project work session, continued  Chamberlin Computer Labs

5:45 PM  Dinner (The cafeteria stops replenishing food at 6:15. The doors close at 6:30. We recommend that you arrive at Commons before 6:15.)  Commons

6:30-9:00 PM  BioQUEST Curriculum Consortium Annual 4-H Show  Mathers Room in Pearsons
Participants share curricular materials

Thursday, June 17

8:00 AM  Breakfast  Commons

Phase III
During the third and final phase of the workshop, participants work on the development of new curricular materials that are primarily applicable to undergraduate education. These projects are submitted online and displayed on our web site for access by the broader BioQUEST community.

9:00-10:00 AM  Exploring 3D Molecular Structures Using NCBI Tools  Mathers Room in Pearsons
Eric Sayers, National Center for Biotechnology Information
The Origin and Organization of Structure Data
* How structures are determined
* PDB files: content and formatting
* How NCBI Curates Structure Data
* Entrez Structure records
* Entrez 3D Domain records
* Entrez links
Thursday, June 17

* Sequence-structure alignments with BLAST
* Structural alignments with VAST
* Curating Conserved Domains at NCBI
* PSSM: The basis of multiple sequence alignments
* Entrez Domains and CDD
* Curating structure-based sequence alignments
* Creating and editing alignments using Cn3D

10:20-10:35 AM Break

10:30-12:00 PM Workshop I: Working with Structures in Cn3D Ruth Peterson Room

Eric Sayers, National Center for Biotechnology Information

* Searching for structures in Entrez
* Gathering details from PDB files
* Viewing NMR ensembles and crystal structures
* When and how to use molecular rendering and display options
* Annotating structures and producing figures
* Saving images and data for use in Powerpoint or other applications

EXERCISE: Analyze a structure and prepare a figure illustrating particular features

12:00-1:30 PM Lunch Commons

1:30-3:00 PM Workshop II: Working with Alignments in Cn3D Ruth Peterson Room

Optional

Susan Dombrowski, National Center for Biotechnology Information

* Finding model structures using pre-computed sequence alignments
* Finding structural homologs using pre-computed structure alignments
* Building sequence alignments to a model structure in Cn3D
* Building structure alignments in Cn3D

EXERCISE: Discover and analyze a structural model for a query protein.

1:30-6:00 PM Group Project Work time

6:00 PM Picnic Logan Museum

7:00 PM Tour of Logan Anthropology Museum, Nicolette Meister
7:30 PM Tour of Wright Art Museum, Nicolette Meister

8:30-10:00 PM Evolutionary Bioinformatics Book Session Ruth Peterson Room

Participation optional
Friday, June 18

8:00 AM  Breakfast  Commons

9:00-10:00 AM  Comparative Genomics, large scale alignment, and comparison tools
Mathers, Pearsons
Ivan Ovcharenko, Lawrence Livermore National Laboratory

10:00-10:30 PM  Break

10:30-12:00 PM  Comparative Genomics, large scale alignment, and comparison tools
Lab Session
Ivan Ovcharenko, Lawrence Livermore National Laboratory

12:00-2:00 PM  Lunch and free time  Commons

2:00-4:30 PM  Group Project Work time

4:30-5:30 PM  Structural Biology
Stephen Everse, University of Vermont at Burlington

5:45 PM  Dinner  Commons

Participants may also go to Harry’s Place on the Beloit riverfront for dinner (starting at 5:00 PM) and/or free live music (starting at 7:00 PM). Be sure to get there early for Otha’s Ribs.

Saturday, June 19

8:00 AM  Continental breakfast  Café Bio, Chamberlin 215

8:30-12:00 PM  Group project work time

12:00-1:30 PM  Lunch  Commons

1:30-3:00 PM  Group presentations, Session #1  Ruth Peterson Room

3:00-3:30 PM  Break

3:30-5:00 PM  Group presentations, Session #2  Ruth Peterson Room

5:00 PM  Dinner  Commons

7:00 PM  Dessert at John Jungck’s house (730 Harrison Avenue)
Sunday, June 20

8:00 AM       Continental breakfast       Café Bio, Chamberlin 215

9:00-10:00 PM  Evaluation                   Ruth Peterson Room

10:00-11:30 AM Group presentations, Session #3  Ruth Peterson Room

11:30-12:00 PM Planning Ahead & Wrapping Up

12:00-1:00 PM  Lunch                        Commons

Van Galder Shuttles depart for O’Hare Airport at 12:55 PM and at 2:25 PM.