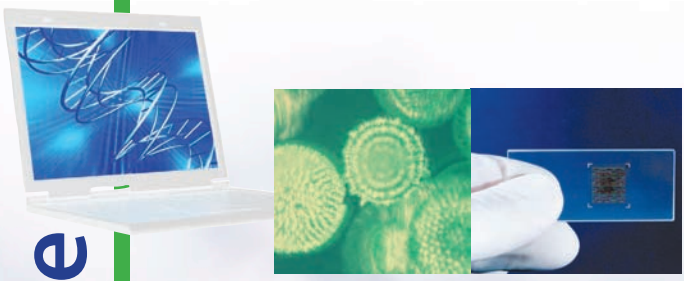
VIRGINIA BIOINFORMATICS INSTITUTE AT VIRGINIA TECH

2009 VBI Summer Institute



Workshops Scheduled for 2009

- Oomycete Bioinformatics, June 3 - 5
- CIBRED, June 17 - 19
- COPASI, June 30 - July 2

Summer Research Experiences for Undergraduates, May 26 – July 31

- REU Site: Modeling & Simulation in Systems Biology
- Systems Biology Fellowship
- Bioengineering/Bioinformatics Summer Institute

Summer Research Experiences for High School Students, July 13 – July 17

- Destination: Bioinformatics Research

Please visit the VBI Summer Institute website, http://summer2009.vbi.vt.edu

VirginiaTech
Invent the Future

Oomycete Bioinformatics Workshop

June 3 - 5, 2009
Instructor: Dr. Brett Tyler

Cost: $120
For registration information, please visit:
http://oomycete2009.vbi.vt.edu/
Contact: trudy@vbi.vt.edu

Travel Awards are Available
Application Deadline for Travel Awards is March 31, 2009.

The goals of the Oomycete Genomics Research Collaboration Network are (i) to provide training to oomycete molecular genetics researchers, especially those from smaller institutions, in the use of bioinformatics and genomics resources; (ii) to promote the participation and training of new investigators in the field of oomycete genomics, particularly junior faculty and faculty from institutions under-represented in the United States research infrastructure; and (iii) to promote communication and collaboration, and minimize duplication of effort, within the worldwide oomycete genomics community.

This workshop provides a day of lectures introducing the wide variety of oomycete genomics and bioinformatics resources currently available, followed by a two-day "mini-jamboree" in which participants carry out in-depth comparisons of genes from the five oomycete genome sequences currently available: *Phytophthora sojae, Phytophthora ramorum, Phytophthora infestans, Hyaloperonospora arabidopsidis, and Pythium ultimum.*

CIBRED Workshop

June 17 - 19, 2009

For more information, please visit:
http://cibred.vbi.vt.edu/
Contact: Bruce Sharp (bsharp@vbi.vt.edu)

Who should attend: We encourage teachers interested in becoming involved and/or attending part or all of our summer workshop to contact us.
Location: The workshop will be held in the Washington Metropolitan Area.

The Cyberinfrastructure Group at VBI (VBICIG) is leading the two-year CI-TEAM Implementation for Biological Researchers, Educators, and Developers (CIBRED) program. CIBRED is a virtual organization consisting of the following collaborators: VBI, Hampton University, Howard University, National University, Auburn High School, Blacksburg High School, Denbigh High School, Galileo Magnet High School, San Marcos High Tech High School, Norwalk La Mirada School District, Phoebus High School, and South Whittier School District.

One of the main goals of CIBRED is the development of sustainable, scalable cyberinfrastructure courses within a project-centric, research-focused, and interdisciplinary learning environment that is diverse enough to be deployable at 8-10 different institutions but has a common theme of preparing a cyber-ready future workforce. During the 2009

Continued on next page

Continued from previous page

summer workshop we plan to meet with the CIBRED collaborators and other interested parties.

The workshop agenda will include a brief CIBRED overview followed by detailed presentations from each collaborator showcasing completed cyberinfrastructure course modules. There will also be discussion on the CIBRED website and other methods of course material dissemination.

COPASI User Workshop

June 30 - July 2, 2009
Instructors: Dr. Stefan Hoops & Dr. Pedro Mendes

Cost: $100
For registration information, please visit:
http://www.copasi.org/UserWorkshop2009
Contact: registration@copasi.org

Who should attend: Graduate students and scientists in the life science area who are interested in using COPASI as a modeling tool. Prior knowledge of COPASI is not required.

This user workshop provides hands-on experience with COPASI's main capabilities. During this three-day course, participants learn how to create models within COPASI and use its powerful simulation and analysis features.

COPASI's features will be introduced with known existing models such as the Circadian Clock or Calcium Oscillation. Real experimental lab data is used to analyze and fit enzyme kinetic models. Some of the features highlighted during this case-based approach are:

- Stochastic Simulation
- Sensitivities
- Scans
- Optimization
- Reports
- Plotting
- Histograms
- Batch Processing

Desktop computers in the training room are provided, but participants may also bring their own laptops and network access will be provided.

REU Site: Modeling and Simulation in Systems Biology (MSSB)

May 26 - July 31, 2009

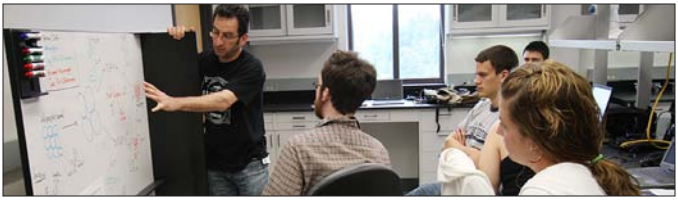
The scientific focus of the program is the modeling and simulation of biological networks, ranging from intracellular biochemical networks to networks at the organism level and the population level, through the study of the spread of epidemics in social networks. The program is a partnership between the Virginia Bioinformatics Institute (VBI) and the Interdisciplinary Center for Applied Mathematics (ICAM) at Virginia Tech.

For registration information, please visit:
http://biomath.vbi.vt.edu/
Contact: biomath@vbi.vt.edu

Who should attend: Rising juniors or seniors majoring in a mathematical or computational science.
The Application Deadline is February 6, 2009.

REU Site: MSSB is funded by NSF Award Number 0755322

VBI is a multidisciplinary research institute integrating quantitative and experimental approaches to biological systems. ICAM focuses on interdisciplinary research and education, bringing together mathematics, engineering, and the sciences.



Systems Biology Fellowships

May 26 - July 31, 2009

The new field of Systems Biology aims to integrate experimental and computational approaches to find answers to fundamental questions about biological networks at the systems level. Mathematical models based on data from high-throughput experiments can help to elucidate the structure and dynamics of networks, and properties such as robustness and stability.

For registration information, please visit:
http://systemsbio.vbi.vt.edu/
Contact: betsyw@vbi.vt.edu

Who should attend: Junior or senior undergraduate students that are interested in Systems Biology & students considering graduate school in these areas. **The Application Deadline is February 6, 2009**.

Systems Biology Fellowships are funded by the Virginia Bioinformatics Institute

Continued on next page

Continued from previous page

This research agenda requires tightly integrated teams of researchers from diverse disciplines, supported by state-of-the-art experimental and computational resources. Bioinformatics provides quantitative and software tools for the management and analysis of the experimental data required for this effort.

VBI has established one Systems Biology Fellowship per year for an outstanding undergraduate student. This fellowship will provide an opportunity to spend ten weeks during the summer working within one of the ongoing systems biology research projects at VBI. Room and board, airfare, and a stipend are provided.

VBI is organized around the philosophy of systems biology and the concept of team science. Rather than organizing research according to academic disciplines, the academic disciplines represented at VBI organize themselves around the specic needs of individual projects. Furthermore, VBI operates extensive core laboratory and computational facilities.

Bioengineering/ Bioinformatics Summer Institute (BBSI)

May 26 - July 31, 2009

Be a part of this exciting state-of-the-art research experience. Bioengineering and Bioinformatics Summer Institute (BBSI) is a collaborative effort between the Virginia Tech - Wake Forest University School of Biomedical Engineering and Sciences (SBES) and the Virginia Bioinformatics Institute (VBI). Our intellectual focus - integrated and quantitative bioengineering - is a common thread throughout both biomedical engineering and bioinformatics.

We emphasize four major thrusts:

- Computational Systems Biology
- Computational Bio-imaging
- Computational Physiology
- Mathematics

For registration information, please visit: http://www.bbsi.sbes.vt.edu/
Contact: bbsi@vt.edu

Who should attend: Junior or senior undergraduate students who are interested in bioengineering and/ or bioinformatics. **The Application Deadline is February 6, 2009**.

BBSI is funded by NIH/NSF Award Number 0609225

The objectives for BBSI are to 1) provide targeted students with quantitative and integrated bioengineering/bioinformatics related educational and research experiences to complement the students' existing single discipline programs, and 2) motivate and enable these students to pursue graduate degrees and careers in biomedical engineering and bioinformatics related fields.

High School Summer Program *Destination: Bioinformatics Research*

July 13 - 17, 2009

For registration information, please visit:
http://highschool.vbi.vt.edu/
Contact: Kristopher Monger
kmonger@vbi.vt.edu; (540)231-3295

Who should attend: high school students (14-18 year olds) within Montgomery Co., Virginia. **The Application Deadline is April 17, 2009**.

Destination: Bioinformatics Research is funded by USDA Award Number 2008-35600-04646

Virginia Bioinformatics Institute (VBI) is offering a high school summer program in hopes of guiding students into a research career and thus recruiting the next generation of scientists. The week consists of several research activity labs, research-related tours, and a discussion/ lecture series.

High school students from Montgomery County excelling in math and science will participate in the program. These students get the unique opportunity to explore the world of genomics and bioinformatics with world-renowned research scientists in professional labs. The main objective of the high school program is to positively influence the students' outlook on scientific research.

About the Workshops

The Virginia Bioinformatics Institute (VBI) at Virginia Tech is a research institute dedicated to the study of biological sciences. Work at VBI involves collaboration in diverse disciplines such as mathematics, computer science, biology, plant pathology, biochemistry, systems biology, statistics, economics, and synthetic biology.

As a new outreach initiative, VBI has designed several summer professional development programs for the 2009 VBI Summer Institute. The workshops are held at varying times from late May until late July at VBI, located on the Virginia Tech campus. For registration information, refer to the web sites included in the workshop descriptions.

For more information about the Virginia Bioinformatics Institute, visit:

http://www.vbi.vt.edu/

For More Information

For further information about the 2009 VBI Summer Institute, contact:

Education and Outreach Department
Phone: (540) 231–2100
E-mail: betsyw@vbi.vt.edu

Virginia Bioinformatics Institute
Washington St, (0477)
Virginia Tech
Blacksburg, VA 24061

2009 VBI Summer Institute