This summer 2-week intensive course is directed towards eligible undergraduates, graduate students and postdocs interested in further developing their expertise in biology relevant high performance and data intensive computing field. The vast majority of biomedical scientists are primarily users, generally utilizing small, select applications that track evolving “-omics” data generation technologies. It is therefore important to be current in these technologies, as we are at Virginia Bioinformatics Institute (VBI) at Virginia Tech through data generation and data analysis cores. To benefit the majority of biomedical researchers, bioinformatics solutions must be delivered as a service with simple user interfaces and data transfer protocols where large private datasets can be analyzed in context with the vast accumulated knowledge found within the major databases – Medline, GenBank, etc. (Cochrane, 2010).

During the course, participants will attend lectures and discussions by leading field members including academic and industrial affiliates and work on a group research project with 3 other course participants.

All participants are required to attend all summer institute events and at the end of the course, each participant will be required to present their research project with their group.

Faculty Mentors
Dr. Peter Athanas, Dr. Gerome Breen, Dr. Skip Garner, Dr. Raphael Isokpehi, Dr. David Mittelman, Dr. Kevin Shinpaugh, and Dr. Liqing Zhang are faculty members that will serve as co-mentors for the institute participants.

About the program
• 2 week program – Tuesday, July 29th to Friday, August 8th centered on “Personal Medicine Genome Assembly” (fly in on July 28th and fly out on August 9th)
• Team projects (4 to a team; teams will consist of at least 2 each of biology and CS students) will consist of genome assembly and/or visualization applications.
• 16 students total

This course is supported by a NSF Funded Award No. OCI-1124123.
Program Eligibility
Applicants MUST have:
1. knowledge and understanding of general biology principles and genetics/genomics.
2. knowledge and experience in Linux.

Basic knowledge of the following is desired:
1. basic knowledge of command line programming (Perl, Vi or other editors)
2. familiarity with Blast, ClustalW, Perl, and Burrows-Wheeler Alignment Tool (BWA)
3. Interest in high performance computing and data intensive computing
4. basic knowledge of relational databases (i.e. CSQL, MySQL, SQL Server)

A total of 16 students will be accepted into the program for 2014.

The course is paying for:
1. Travel to VBI. The travel expenses incurred to come to VBI, will be reimbursed based on a travel-cost calculation set forth by the Commonwealth of Virginia. You will be paid the minimum amount allowed, based on the most inexpensive options that you had to travel.
2. Lodging (in Virginia Tech dorm rooms) and sustenance (on campus dining hall)

Attendees may choose to include (at their own cost) weekend trips (such as tubing, fishing, wine tasting and hiking).

2014 Program Dates: July 29 - August 8
Application deadline is March 30, 2014

Program Website
http://nsfsi.vbi.vt.edu/

For more information, or to apply to the program, please visit the program website: http://nsfsi.vbi.vt.edu/

All questions should be emailed to: nsfsi@vbi.vt.edu

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