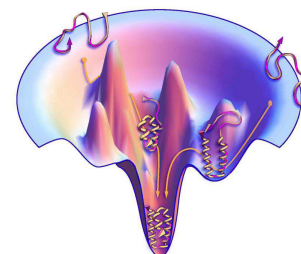


CS4414: Issues in Scientific Computing

Instructor:	(1) Dr. Alexey V. Onufriev, 2160C Torgersen Hall Email: alexey@cs.vt.edu Office Hours: 2 - 4 pm Wed
Teaching Assistants:	TBA
Textbooks:	See the web site
Course Notes:	See the web site
Midterm:	NONE
Final exam:	Final project report, due date TBA
Course Website:	http://courses.cs.vt.edu/cs4414/S15

Course purpose and structure This project-based course gives students hands-on experience with computationally intense research. Students will work in groups on realistic computational projects; they will be exposed to the entire life cycle of a research project, from initial brainstorming to final report. The projects will involve many aspects of scientific computing, such as choice of appropriate numerical methods and algorithms, choice of software, computational platform and visualization.



Students will also learn about modern parallel computing (including GPU) and use of modern numerical software. Basic numerical methods relevant to the projects, as well as useful unix tools will also be covered.

The course will include instructor's lectures, student presentations (second half) and work on the projects. Access to real computational facilities will be provided.

In the past, students from different disciplines and departments took the course (Physics, Bio, CS, GBCB), which made it a multi-disciplinary experience. Not everyone is expected to have the same background.

Grades Final grade: 60 % will come from the project, and 40 % from the homework. The project grade will be based on the final report and student in-class presentations.

Assignments No late assignments will be accepted unless you have an acceptable excuse (e.g. documented illness). Network glitches etc. are NOT acceptable excuses for late submission unless you can provide documentation from campus network service that the outage lasted for several hours around the deadline time.

Problem Solving as part of a group. Most assignments will require groups of 3 or more students. When students turn in a joint assignment, all students will normally receive the same grade. You may not switch partners in the middle of an assignment. In other words, you may not discuss solutions for any one assignment unless you are working on a group assignment. Then you are NOT allowed to discuss the assignment with members of other groups. It is recommended to stay with the same group throughout the entire course.

When students work in groups, it is important that all students involved completely understand the answers that they submit. The instructor reserves the right to require any student to present the answers to their homework and project assignment verbally to insure that each student does in fact meet the minimum requirement of understanding the solutions they submitted, and may reduce credit given for the assignment (to all students!) if the verbal answer is not compatible with understanding of the written answer. All joint submissions **MUST** contain a statement that clearly indicates, for **EACH** problem, the contribution of **EACH** student to the problem. Some possible contributions for a problem might include one or more of the following: Cracked the problem, wrote up the solution, found flaws/improved earlier versions of the solution.

Special Accommodations. If any student needs special accommodations because of a disability, please contact the instructor during the first week of class.