Call out

I am looking for graduate students to study interrelationships between thermodynamics, mechanics and dynamics of proteins, aqueous solutions, and to work on the protein formulation problem (see my research summary for on-going projects). There are many aspects of research that I personally do at a hands-on level ranging from algorithm development and implementation via scientific programing, model building, and analyzing systems using novel computational tools we develop as well as other commonly used state-of-the-art tools. There are opportunities to study specific protein systems to learn about mechanisms at the atomic level to provide insight into how a protein functions. Students with background in Mathematics, Physics, Chemistry, Bioinformatics or Computer Science are invited to contact me. You will be exposed to computational work that includes data analysis to understand the workings of a protein in the context of basic principles of Biochemistry, Pharmaceutical Chemistry, Protein Chemistry, Biophysics, Polymer Physics, Soft-condensed Matter Physics and Statistical Physics. You will be exposed to High Performance Computing, Scientific Programming and Computational Mathematics/Physics/Chemistry/Biology. There are also opportunities for Software Engineering in my lab with many C++ and Java codes, as we are at the stage of releasing user-friendly software to the academic community. Your actual research project will involve only a small subset of these complimentary fields (or just one), but as a member of the BioMolecular Physics Group (BMPG) you will be exposed to all of these areas, and more.

Doing thesis research as a graduate student is a requirement.
I have the following expectations with graduate students that work for me.

1. As an undergraduate, you must have had an overall GPA of 3.0 or better, and your average GPA must be better than 3.5 when confined to your math, science and technical classes.

2. If you get paid in the form of a stipend, your responsibility to be productive in research is similar to holding an outside job. That is, a minimum number of hours must be spent each week.

3. If you are doing research for credit then treat your tasks that must be done to meet your project goals like a class (i.e. equal priority in distributing your workload).

4. I expect the student to be self-motivated, meaning we discuss project scope, objectives, goals, and the student works toward meeting the project goals. We discuss progress and snags as they arise. Much of the experience gained in doing research is to learn how to be resourceful, and independently solve problems. There is a full spectrum that spans between asking how to do everything, and refusing to get help on anything. Usually it is good to ask how to do something to save yourself a lot of time, while other times it is best you spend time and learn something the hard way, which includes reading relevant sources and figuring things out on your own. My method to keep the student in proper balance is to have the students present weekly updates, and issues are worked out on a case-by-case basis.

5. I view my role supervising graduate research as part of teaching, but I expect that the outcome of thesis work will lead to publications. Taking on graduate students in my lab is an essential element to maintain research productivity of my lab. As such, research productivity of a graduate student is necessary to be in good standing. Because of the equivocal nature of research, the only way a person can be productive is if they are self-motivated and have passion for the topic.

6. M.S. students are assigned limited scope projects. By the end, Ph.D. students must demonstrate independence; meaning: Hypothetically, if ten Ph.D. students were assigned identical projects, the resulting end product of 10 Ph.D. dissertations would show similarity only in the starting point, and would otherwise have final conclusions quite different that reflect the direction that the Ph.D. student drives the project, not me. This element of independence is a requirement.