

SEAL Orientation Sheet for New Students

Last Updated: Sunday, April 30, 2017

Please send suggestions for improvements to Prof. Mamishev.

Welcome to SEAL!

The Sensors, Energy, and Automation Laboratory (SEAL) of the Department of Electrical Engineering is directed by Professor Alexander Mamishev. SEAL conducts research in a variety of areas, including medical device design, consumer products, energy efficiency, security applications, non-destructive testing, and transportation.

Students at SEAL are expected to participate in lab projects, team meet-ups, pursue scholarship opportunities, business plan competitions, grant writing, and other activities designed to foster student growth, productive research, and technology commercialization. SEAL is a distributed matrix organization that it uses principles of Scrum and JIT. Search web if you are not familiar with these terms.

SEAL seeks to maintain a proactive atmosphere for competitive students looking to jumpstart their careers. We welcome and encourage proactive participation—in other words, if you are not putting in the amount of effort that you know you are capable of, please let your team leader know. We are happy to have you as a part of our team, and we look forward to getting to know you!

General Principles

Regarding pay, we use the principle of *We Eat What We Kill*, meaning that the amount of money that a team member can earn while working in the lab depends on our joint ability to locate and use various money sources: scholarships, fellowships, grants, kickstarter funds, investments. Thus, to be paid, you must be a part of a team that earns its worth (or an individual effort that generates these funds). The range of effort from lab members results in zero to millions of dollars. Stronger teams tend to be more successful. Please note that it is a privilege to be on an A-team; generally, students must first prove themselves hard working and clever in simpler projects.

Frequently Asked Questions

Q: What is the expected time commitment?

A: For an undergrad or a graduate PMP student or a graduate student in the trial mode: 10 to 15 hours per week on the average. For a regular daytime program RA graduate student: 20 to 30 hours per week. Lesser involvement makes it not worth the student's time (nor our time) with training, interacting, or project completion. Working hours are generally flexible, although students are expected to meet all deadlines. If you are unable to meet a deadlines, you should let your team leader know immediately and with enough advance notice.

Q: How many research credits should I take?

A: The university allows 2 to 5 research credits, such as 299, 399, 499. Figure out what is best for you and register for that. The minimum expected time commitment is at least 10 hours per week. The logic "can I register for just a few credits and spend just a little time" does not work here, it is not worth our time interacting with a student whose contribution would be too little.

Q: When are lab meetings?

A: We prefer teleconferences, as students, faculty, and staff have busy schedules and time commitments. Teleconferences are usually held Monday through Thursday in the evenings, depending on the project team. In-person meetings vary by the preference of the team group and the team leader. See the *SEAL Matrix Organizational Chart* at the SEAL Internal Webpage for more information on the SEAL hierarchy, student repository, and meetings times.

Q: Can we meet so that I can get your signature?

A: A signature does not warrant a meeting. Leave the paper that needs to be signed in the In box on my door in 215K or in my mailbox in EE central office, pick it up from the door Out box or, if it is a form that needs to go back to the department and it is in my mailbox, I will turn it in myself.

Q: Where is the lab roster?

A: The entire lab roster is kept in two locations: 1) <https://sealuw.slack.com/team>, which provides a brief description of the SEAL member with a method of contact; and 2) the *SEAL Matrix Organizational Chart*, which provides a general hierarchy of roles and team functions.

Q: Where is the lab located?

A: The SEAL lab is at 059, upper basement of EE building. There is also an office room 215L. We are also using a variety of other resources and labs on campus, as needed by the projects.

Q: Why is there so much writing?

A: This is a research lab, our final product is proposals, papers, and reports. Of course, to produce those, we need to make devices work and code to run; it's just that every step needs to be documented, for the lab and for outside world. If the work is not published, to the outside world it is as if it was never done. If the proposal is not submitted, there will be no funding for the project.

Q: How do I get scholarships based on my research efforts?

A: Watch the webinar *Small Game Hunting*. Also, see the corresponding sections in the Guide for New Students.

Q: How do I get involved in the business plan competitions?

A: We encourage our students to participate in business plan competitions based on their work in the lab. Such an effort should be coordinated with the lab director so that you do not accidentally do something that would, for example, hurt a relationship with research sponsors.

Q: How can I get published?

A: The overall process is quite easy—select a target journal or conference and write a paper for it. The devil is in the details. More experienced team members can help with intermediate steps.

Q: How can I assist with the grant writing process?

A: We constantly prepare and submit grant proposals. The Matrix Organizational Chart shows what we currently are working on; you can contact a Direction leader about your desire to participate. Often, you will be preemptively contacted.

Q: Do I get to choose my own projects/focus, or will assignments be given to me?

A: It is a mixed bag. We go through the matching process, trying to match projects to your interests. Sometimes, however, there is an urgent project where anyone available needs to pitch in, and, sometimes, there are no projects available that match your interests. Once you are integrated in the lab, you will have a chance to chart your course.

Q: What if I am out of tasks and I want to be productive? What should I do?

A: Each direction maintains a list of Backlog and Icebox tasks on Pivotal Tracker; you can pick from those. You can also request more tasks from your team leader—we encourage being proactive.

Q: I changed my mind and want to leave the lab. What do I do?

A: Anytime. If you leave early in the quarter, drop the research credits, if you leave late, make sure you had a decent contribution to date and keep the credits. Write a final report so that the following students can continue.

Q: Can I have a face-to-face meeting with Prof. Mamishev?

A: It is possible, but the situation must be right. All general questions are answered in the orientation sheet and Guide for New Students; topics that are discussed in these materials are not to be repeated in a personal meeting—time is precious. Similarly, project-related questions should be processed via slack, Pivotal Tracker, during teleconferences, and/or sent to team leaders. However, there may be legitimate questions that require a personal meeting with Professor Mamishev; you can bring these questions up and approve the meeting agenda prior to the in-person meeting. There are also nearly weekly teleconferences announced via slack and pinned in #general channel, where anyone can join and ask their questions.

Q: How to participate in teleconferences?

A: You will get an invitation to a GoToMeeting. The teleconferences are in a computer screen sharing mode. You do not need a video camera. Make sure you are in a quiet environment and use a high quality headset – not a speaker phone, not a built-in computer microphone. Keep yourself muted when not talking. When necessary, the teleconference will be recorded, you can then go over the recording as many times as you need to catch complex details.

Q: How to communicate with group members?

A: With Prof. Mamishev:

Ongoing business – via slack, choose the appropriate level: private messages, group channels, general channel. Tasks that can be forgotten – via Pivotal Tracker. Complex issues requiring dialog – via phone. Face-to-face meeting is the last resort. File exchange – via dropbox.

With other team members – use your judgement, everyone is different. For internal communication slack is the first venue, for external communication email is the first venue.

Q: What if I cannot participate in the next week’s teleconference because I am on travel?

A: Ninety percent of the time you are still connected by your cell phone. You can read updates on slack and you can call in, and you can get screen share with any modern cell phone. Most telecons are 30 minutes. You can be in a moving car, train, or in the middle of a wedding – you can still put on the Bluetooth, walk out of the loud party, ask the groom to hold the kisses, etc – and complete your call. You do not have to, but remember, we eat what we kill.

Q: How to earn course credit:

A: Please fill out the EE 490/499 form (see attached of pick one up from our front desk). Specify which type of credit (EE 490 which is CR/NC) or EE 499 (which is decimal graded) you and Prof. Mamishev have agreed to. Please note EE 490 cannot be used towards EE elective credit if you end up in the EE major. In addition, please fill in the number of credits and a brief summary of the project or work you will do. Once Mamishev approves the information, (signature on the form or Prof. Mamishev can confirm the information in an email), then student advising office can give you his faculty code to register. Prof. Mamishev does not have these codes.

Q: How to request recommendation letters:

A: You are entitled to receive recommendation letters and job-search assistance from lab director, unless your performance was found unsatisfactory, of course. To request a recommendation letter, submit your resume, institutional forms, and a cover letter with special instructions. It helps when you provide a list of bullet points listing your strengths and achievements specific to the lab. Also, be clear about deadlines. All forms must be filled out as much as possible with advisor information.

Q: Under what conditions are you advised not to join research?

A: The most frequent failure scenarios in research is improper time management between research, courses, and/or outside work. If reducing course load/working hours is not an option, who should just focus on classes, as less damage is done to the research project and higher grades for you. Lack of focus or communication can result in failure in research, so be sure to discuss with mentors, experienced students, and allocating enough time for project. Finally, lack of discipline will result in immediate removal of students.

Software Tools Used in SEAL

Title	Where to get it	Tutorials	How we use it
PivotalTracker (Free)	Request a link for access https://www.pivotaltracker.com	http://www.pivotaltracker.com/help/gettingstarted	Project tasks are coordinated through PivotalTracker and occasionally through slack. Do not send important tasks through email because emails get forgotten.
Slack (Free)	Get a link for access https://sealuw.slack.com/	https://get.slack.help/hc/en-us/articles/218080037-Getting-started-for-new-users	Used for real time digital collaborative communication, coordination, and progress updates
Dropbox (Free)	https://www.dropbox.com/	https://www.dropbox.com/tour/	All files should be stored on Dropbox for peer access
GoToMeeting (Free)	Wait to be emailed a link to your first meeting—it will self install	You will be given a link and a phone number. Click the link to access via computer, and call the number to get audio with your phone.	Used for weekly discussions, screen sharing, and teleconferences. Make sure to have a quality headset for audio quality. Phone audio preferable.
Microsoft Office (Word/ Excel/ Powerpoint)	You can purchase a copy through UWare	Request a copy of Professor Alexander Mamishev's book, the STREAM Tools Handbook	Word is used for all writing projects (papers, proposals, theses)
EndNote X7	You can purchase a copy through UWare	http://www.endnote.com/training	EndNote is used to manage all bibliographic references and citations
UW Email (Free)	Self explanatory	Self explanatory	Preferably last resort—Use Slack instead. Emails get lost.
Habitica (Optional) (Free)	https://habitica.com/	http://habitica.wikia.com/wiki/File:HabitRPG_Tutorial_1_Tasks	Optional: Helps schedule your life. Handy digital calendar to keep track of daily tasks, habits, and overall progress.
STREAM Tools (Optional) (Theory/Book)	Request a copy of Professor Mamishev's book, <i>the STREAM Tools Handbook</i>	All tutorials are provided in the book.	Professor Mamishev's system for: managing technical projects, using proper collaborative techniques, surviving teams, using software (like Word), writing technical papers, etc.