

LASER OPTICS SOCIETY

RULES FOR PARTICIPATION

GENERAL

Participation in the Laser Optics Society (LOS) is open to all School of Rhetoric Students. Students in the LOS work on projects in the Laser Optics Lab (LOL) and attend lectures on optics to complement their work in the LOL. The LOL is open for student work on Tuesday evenings from 7-8:30 pm and Fridays from 3-5 pm.

It is a rare opportunity for high school students to be able to work with the kinds of equipment that are available to students in the LOL. The technologies in the lab are sophisticated and expensive, and high schools typically do not have the budgets, facilities or expertise to make explorations of these technologies available to students. Thus, it is a great privilege that we are able to operate this facility at Regents for interested students. However, the optical components in the LOL are delicate and require special techniques for handling and maintenance. Additionally, the lasers used in the LOL can pose significant hazards (particularly to the eye) if standard safety practices are not known and followed.

The purpose of the Laser Optics Society is to enable students to have opportunities to develop significant experience with lasers and optical components in a wide variety of applications in physics, chemistry, biology, and industry. Through membership in the LOS, students obtain the training they need to use the equipment properly and safely. This is accomplished by establishing various membership grades in the LOS, each grade requiring a certain level of training and experience, and higher grades representing a higher level of responsibility and independence in laboratory work. Students at the higher levels of membership will also have leadership and teaching opportunities by showing and explaining LOL projects to groups of students and to campus visitors, by teaching specific lessons on light or optics to younger students, or by acting as research assistant to a faculty member exploring a new laser application.

New students who wish to become involved in the LOS begin by completing the safety training described in the Laser Safety Program, which includes viewing several short videos on laser safety. The safety training is followed by requirements for in-lab observations and reading of materials on lasers and optics.

Work in the LOL focuses on one or two major projects per semester. Students in the LOS participate in the lab by helping to unpack, set up and align equipment in preparation for one of the projects. New projects will often entail auxiliary tasks that students will help with such as soldering cables, assembling equipment, building fixtures, or researching new products or technologies. New projects are usually very challenging and can take a lot of time to perfect, providing additional opportunities for students to be involved in troubleshooting and research to bring new projects to completion.

STUDENT MEMBERSHIP GRADES

GRADE 0 Grade 0 membership is the first step for students who wish to work in the Laser Optics Lab. Members at Grade 0 are eligible to observe project activities in the Laser Optics Lab.

To attain Grade 0 students must:

- Attend the short Orientation Presentation, Fundamentals of Light (PowerPoint show #1)
- Complete the safety training described in the Laser Safety Program. This training includes watching several short videos on laser safety.
- Return the signed Safety Agreement.

GRADE 1 Members at Grade 1 are eligible to participate actively (hands-on) in project activities in the Laser Optics Lab. They are also eligible to purchase a Laser Optics Society T-shirt.

To attain Grade 1 students must:

- Complete requirements for Grade 0.
- Log five hours of lab activities, which may include observing project activities in the lab or attending lectures sponsored by the LOS.
- Read Resource Packet No. 1, "Introduction to Lasers," available from the LOS, and score 84 or higher on a multiple-choice quiz covering its contents.
- Read Resource Packet No. 2, "Introduction to Optics," available from the LOS, and score 84 or higher on a multiple-choice quiz covering its contents..

GRADE 2 Members at Grade 2 are eligible to work independently on assigned tasks in the lab, and to lead other students in completing assigned tasks.

To attain Grade 2 students must:

- Complete requirements for Grade 1.
- Log 10 additional hours of lab activities, which may include participating in project activities in the lab or attending lectures sponsored by the LOS.
- Read Resource Packet No. 3, "Use and Handling of Optical Components," available from the LOS, and score 84 or higher on a multiple-choice quiz covering its contents..
- Demonstrate a working knowledge of the terms on the LOL Fundamentals Vocabulary List available from the LOS, and score 84 or higher on a multiple-choice quiz covering its contents.
- Demonstrate a solid understanding of safe use of lasers and proper handling of associated optical hardware to the satisfaction of the Director of the LOL.

GRADE 3 Members at Grade 3 are eligible to propose and organize new projects, to handle optical components without supervision, and to direct other students in lab activities. Grade 3 members may independently operate laser systems and projects at power levels below 5 mW. Additionally, Grade 3 members are eligible to give presentations of LOL projects to other students and to visitors.

To attain Grade 3 students must:

- Complete requirements for Grade 2.
- Log 30 additional hours of lab activities, which may include participating in project activities in the lab or attending to lectures sponsored by the LOS.
- Read Resource Packet No. 4, "Advanced Optics and Fiber Optics," available from the LOS, and score 84 or higher on a multiple-choice quiz covering its contents.
- Demonstrate a working knowledge of the terms on the LOL Advanced Vocabulary List available from the LOS, and score 84 or higher on a multiple-choice quiz covering its contents..
- Demonstrate knowledge of and expertise with equipment associated with three separate LOL projects to the satisfaction of the Director of the LOL.

FACULTY SPONSORS

Regents Faculty who are interested in the work of the LOS can become a LOS Sponsor by contributing to the LOS in a meaningful way. Possibilities include assisting in training students, assisting in the LOL, providing logistics support and/or refreshments for LOS guest lecture meetings, mechanical support (includes large system setup assistance, fabrication of special components or jigs, etc.), and coordinating transportation for LOS field trips. LOS Sponsors are eligible to purchase a LOS T-shirt.