A message for Physics Department Leadership

or any person interested in growth and vitality for undergraduate physics programs

Two Words: RECRUITMENT and RETENTION

Both are critical to achieve a thriving physics program on any campus.

- Having an active student-driven group in the department has a significant effect on departmental culture. Active, engaged students are the best for the recruitment and retention of new students.
- Students active in SPS programs find PURPOSE through participation in research, outreach and public service. They will be contributing members of a community and not just individuals taking exams. This purpose is a driving force to complete the program.
- SPS members are eligible for awards, internships, and grants that will also enhance the prestige and visibility of your Department.

Simple Ingredients to make it work:

- Active, engaged and dedicated Chapter advisor
- Consistent effort to shape the culture so undergraduate students are valued
- Modest financial support for chapter activities
- Acknowledgement of high achieving students
- Faculty support and respect across the department

Why SPS? A brief summary

An active SPS chapter serves as a natural community builder and positively impacts retention and recruitment.

As noted in the SPIN-UP study, an active student-driven group in the department has a significant effect on departmental culture, most importantly, on the recruitment and retention of students. Students begin their professional relationships in SPS chapters, where they
- study together
- work together
- serve together
- learn together
- and sometimes, commiserate with one another...

Engaged, successful students are more likely to finish the degree and attract new majors.

Being active in SPS programs provides undergraduate physics students PURPOSE through participation in research, outreach and public service

When engaged in SPS-driven projects, students find a satisfying outlet for the content that they have learned in their courses and make gains in their understanding when they explain physics concepts and experiments to others. This can happen as early as the first course in physics. Students begin to take ownership of their professional responsibilities and see themselves as important, contributing members of a community – in the department, on campus, and in the broader community.
There are a few “musts” that are common among those departments with thriving undergraduate communities.

SPS groups serve as a natural construct for building relationships within departments.

Informal interactions between faculty and students are cited as one of the most important factors in student retention in physics. SPS chapter events can serve as the conduit for these interactions. Through informal interactions with faculty, students begin to see themselves as integral to overall department success and begin to value the success of the community as a whole.

While the ‘boots-on-the-ground action’ happens at the local level, being part of SPS links physics students with an international network of opportunities and awards.

SPS and the associated physics honor society Sigma Pi Sigma offer a number of individual and group awards throughout the year. These awards serve to underscore the importance of the students’ work, to recognize and acknowledge academic excellence, engagement in public service, efforts to improve diversity in physics, and demonstrated leadership. Every four years, students are invited to participate in the largest gathering of undergraduate physics students that exists, the Quadrennial Congress, hosted by Sigma Pi Sigma to take advantage of numerous opportunities to make connections, network, and expand their graduate school and career opportunities.

How? Make SPS work for your department and your students

There are a few “musts” that are common among those departments with thriving undergraduate communities.

Must #1: active and dedicated chapter advisor

Surprisingly, the position of SPS advisor in not highly valued by all departments. Being an advisor can be an extremely rewarding, though exhausting, venture. It is important the department as a whole throw their support behind the efforts of the designated advisor. As a department leader, you are in a position to support that initiative. Some examples are:

· Use creative ways to make the SPS chapter advisor a prestigious position in your department.
· Choose a faculty member with energy, ideas and commitment that is dedicated to the success of the students in your department, and reward that faculty member (in whatever way is possible) for those efforts.

Must have #2: Consistent effort to shape the culture

Shifting culture to ensure that undergraduate students are valued requires consistent effort.

· The most active and engaged chapters are those that have consistent meetings. Some are weekly, some are monthly, but the underlying common factor is periodicity. A positive culture builds around knowing ‘when and where’ SPS meets, and that at least some of the faculty in the department will be there in support.
· The best SPS meetings are those where students leave knowing something new. A meeting without a purpose is viewed as a waste of time by students who have too much homework to waste time.

Must have #3: Modest financial support

Supporting students’ participation in professional community requires a financial commitment. The bottom line is that travel, research, social events and outreach all have some associated costs. With faculty support and enthusiasm, there are a number of ways that chapters can achieve funding levels to support desired activities. Most will require some assistance from faculty mentors. To start, departmental leaders might consider

· looking for creative direct, or even in-kind support for chapter activities through departmental budgets
· supporting students in their quest to find student organization funding through campus avenues.
Must have #4: Acknowledge and honor high achieving students

If your department does not have a Sigma Pi Sigma Chapter and is eligible for one, consider encouraging the SPS faculty advisor to petition for a chapter of the physics honor society. Find modest departmental funds to help provide a formal recognition ceremony for students who have achieved academic excellence. This event is a great way to promote scholarship at all levels in the department. Invite everyone to the ceremony (freshman students, administrators, math professors, etc.)

Must have #5: Buy in from the department, identity and tradition

Overall support from the department for SPS activities is critical. When faculty communicate through their actions that professional community is important, students will follow. As a departmental leader, advocate for a place for students to “be”: a place to study in the department, a place for students to call their own, a “study lounge”, a room where community grows. Encourage unique traditions and empower student leaders to pass on the chapter culture to incoming students. When students are empowered to have ideas and carry out plans, confidence and commitment to finish the degree is bolstered. Encourage the faculty to show interest in student endeavors and to engage them in talking about their research, interests and plans as frequently as possible. Direct and indirect collegial support is critical to success.

1 Available online in a variety of forms:
http://www.aps.org/programs/education/undergrad/faculty/spinup/ (full details of the SPIN-UP study and results)
http://uteach.utexas.edu/sites/default/files/Hilborn_AAPT.pdf (presentation by Robert Hilborn May 2012- UTeach)

Programs, awards and scholarships are funded primarily by The American Institute of Physics, with generous support from dedication Sigma Pi Sigma members and others who champion the mission and vision of AIP undergraduate programs.