

## Notes from Breakout on Small Departments (6/5/04 at 4:30)

Recorder: Mary Lowe

### AP credit

Continuing aggravation.

Have heard that some departments allow credit for a 3 on a B exam. This is ridiculous.

Some departments won't give any AP credit.

### Physics majors enrollments; recruitment and retention

Some old school faculty can drive students away.

Filtering problem: how do we graduate more than just the best students?

At Oberlin, there was period when the number of majors declined. As a result, the faculty tried to build more fun into the department, where the students did not have to work so hard. The faculty are a model for the students. The life of the department has come back.

Environment – a good environment helps recruitment and retention

Give the physics majors a community space.

Make them feel like they belong to a department and group.

Social activities

SPS

Student grapevine – engineers who teeter on the edge may choose physics.

Admissions got a person who recruits just for physics and engineering.

Admissions can encourage more electronic communication in which students can ask a question on a university website. Then the question is directed at a department rep.

Recruiting at local high schools is very labor intensive. Also one meets very few students who are interested in being physics majors.

At Villanova, HS teachers were invited to lunch and were told they can host events at Villanova.

Prospective students can be put in touch with an undergrad. The chair can call the parents of the prospective student.

### For a very small department, how do we convince the administration to keep the department?

How do we increase the number of faculty? This is a chicken/egg problem in which # faculty can be increased if enrollments increase, but enrollments can only increase if the # faculty increases.

### Career paths and internships

Many students are not going to grad school.

Good to start a network of graduates.

Try to make sure seniors have jobs. It looks good to the sophomores and juniors.

Write to alumni and ask them if they want to join an advisory committee. They can be contacts for grad schools or where they work.

Internship program: This is done in the sophomore year (1 credit). It shows the students the realities of the work place, and asks them to prepare a resume and cover letter that targets industry or an REU. Alums are brought in to talk about their careers. The students are required to go to Career Services. Students are given the APS book on Getting Your First Job.

When speaking with alumni, ask them specific questions like:

Do you have opportunities where you work for summer internships?

Would you be willing to give a talk?

Can you provide anonymous comments about your years at Villanova?

Can you provide your email address?

We can try to make employers more aware of the benefits of hiring a physics major.

### Courses in general, interdisciplinary courses and staffing

At Villanova, there was a team-taught astronomy/physics course for 120 nonscience majors.

Both instructors got full credit.

At Villanova, there was a team-taught math/physics course for 30 students. Both got full credit because there was a grant.

Make the administration say no to you for teaching a class with less than 10 students. Also you can emphasize potential growth areas (ex. biophysics) as an opportunity. But say that it may take four years to see the benefits.

Rotate upper division courses.

Applied math/ physics course: one year it is taught by math; another year it is taught by physics.

3 people teaching a 2-semester lab course: 8 credits for students. Each faculty member got full teaching credit (i.e. 3 credits). Writeoff 1 credit.

Upper division astrophysics course – allow liberal arts students to take it. There was a lot of descriptive material, but they do not have to do the math. Course had 25 students.

Service courses for other departments

Must give them what they need.

Engineering only requires competencies, not courses.

Suggest to APS that an accreditation organization would help departments get more money from the administration.

### GREs and assessment

Sometimes the test is taken too early.

The exam may contain questions on elementary particles – like a different language.

Foreign students do well on GREs.

Not a good predictor of grad school performance. No correlation with getting a PhD.

Should talk to grad schools on how much they are relying on GREs.

At one school, GREs are used as outcomes assessment.

Can get an old copy off the Internet.

Middle States is forcing assessment.

College Board has a set of tests in physics; normed.

Guidelines for assessment from APS would be useful. But APS has resisted stating curriculum standard.

Can create electronic portfolios of students' work year-by-year. Watch their development.