Former Cook winner offers advice:
How to get into med school and have a fulfilling career

Louis Profeta has one of the most stressful jobs a doctor can have: he is an emergency physician at St. Vincent’s Hospital in Indianapolis. Profeta loves his job; although he is the first to admit that it’s not for everyone: “you have to be an adrenaline junkie.” The job requires someone who works well in a high-pressure environment, likes variety, and finds inner satisfaction in the work. Few ER patients come back to thank the medical team who saved their lives. It’s a thankless job, but one that Profeta finds exciting and meaningful.

Profeta is an alumnus of the IU Biology Department. As an undergraduate, he received the Cook Inc. Award twice (1984 and 1985). After leaving Bloomington, Profeta attended the IU School of Medicine in Indianapolis, where he decided to specialize in emergency medicine. Profeta completed a residency at the University of Pittsburgh, where he had a range of assignments, including being team doctor for the Pittsburgh Steelers, and flying in medical evacuation helicopters.

After returning to Bloomington briefly to work in the Bloomington Hospital ER, he recently moved to Indianapolis. Currently, Profeta is an Associate Clinical Professor at St. Vincent’s, and is an instructor of clinical emergency medicine at the hospital.

Profeta says pre-med students should make the most of their undergraduate experience. Medical school admissions committees are no longer interested in only the basic science-oriented individual. Instead, favorite candidates have a broad liberal arts background, with outside interests. Community service experience is a plus. In fact, any experience that will stand out on your resume or application, showing that you are unique, is helpful.

Profeta spent two summers working with Cook Inc., and found that experience to be valuable both as an education for him, and as a boost on his resume. He learned a lot about the use and design of medical devices, which continues to aid him in his career. Still, the one thing that Profeta feels set him apart as a medical school applicant was the line on his application that said he won two scholarships for designing medical devices. It’s one sure-fire way to get the admissions committee’s attention!

Cook Inc. Competition ends Mar. 24

Cook Inc., manufacturer of medical devices, sponsors a competition open to any student enrolled in a biology or microbiology course during the Fall 1994 or Spring 1995 semesters. The winner receives $1,000 and is eligible to interview for a paid summer internship with Cook Inc. or one of the other Cook companies. In addition, the company donates $1,000 to the Department of Biology.

For information on the specific requirements of the paper, see Kathy Wyss or Kris Starzyk in JH A115. The deadline for submitting a paper for the 1995 Cook Inc. Award is March 24.


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Biologically Speaking

Start building your future this summer

Take advantage of this opportunity to broaden your research experience. Application forms and more detailed information on the following programs are available in JH 127.

Intercampus Undergraduate Summer Research Grants

This program is designed to permit undergraduates to diversify their research experience by working in a laboratory on a campus of IU other than Bloomington. Brochures are available that list the research interests of faculty on the other seven Indiana University campuses who are interested in accepting Bloomington students into their labs for the summer. If you're interested in conducting summer research on another campus, stop by JH 127 to pick up a copy of the brochure, then contact any of the faculty members listed and indicate that you're interested in joining their research team during the summer.


Awards: $2,000 stipend.

A letter home: IU grad looks back from med school

Bloomington native Amanda Raff, B.S. 1992, is a first-year student at Albert Einstein College of Medicine. She offers this advice to those who wish to follow in her footsteps...

"I first encountered L490 the summer before freshman year, as a lab dishwasher. At that point, the pinnacle of my biology career was a 9th grade leaf collection and I had no idea what was being done in the lab. One day the L490 student in the lab needed an extra pair of hands. I was hustled into the cold room, handed a pipetman, and told to aliquote a solution into cells at given intervals. Unfortunately, leaf collections don't require pipet skills and I ruined the experiment.

At that moment I would never have believed that a mere two years later I would be an L490 student not only doing but understanding real research. I worked in the lab of Dr. José Bonner on a project studying the Heat Shock Factor transcriptional activator in yeast. The HSF protein has a DNA binding domain and a multimerization domain. A grad student and I identified key amino acid residues involved in these functions by creating mutations that knocked out the protein's function. We mutagenized plasmids carrying the HSF1 gene, and then mapped, sequenced, and characterized the mutants.

Lab work is not like taking a class. You learn important, useful things in classes like the structure of DNA and how to use a pipetman. But textbooks are misleading. Facts are clear, experiments elegant, and conclusions unquestionable. In one page you build a library, screen for a gene, identify and sequence the gene, and discover the mode of action of the protein it codes for.

"A friend who is a Harvard grad student said her first year was relatively simple after her IU training."

By doing an L490 project you find out what research is really like. It is time consuming and labor intensive—constructing a plasmid may require months and even running a Northern blot takes three days. Research is often frustrating. Experiments don't always work, data is unclear, and new questions arise at every turn. But there is nothing like the feeling of doing a successful experiment, sitting down with the result, figuring out what it might mean, and designing the next experiment. Working in a lab helps you to truly understand the relevance and beauty of science. The material you learn in class serves as a foundation for understanding what you are doing in lab and the insight you gain by actually working on a project carries over so that classes become more meaningful.

Doing an L490 project is a wonderful experience. You learn an amazing amount of biology in a fun and dynamic setting and your lab experience is relevant to your future. It's a great way to see what lab work is like and what projects/organisms/questions interest you. A friend who is a Harvard grad student said her first year was relatively simple after her IU training.

I worked as a technician for two years and was able to begin at a high salary. Now that I am in medical school, I realize that my L490 experience is a tremendous asset—they don't call the first two years "The Basic Science Years" for nothing. Having a firm foundation in molecular biology has made the beginning of medical school a somewhat kinder, gentler experience. So no matter what your future holds—graduate school, medical school, or work—doing an L490 is definitely the best preparation you can have.
Undergraduate scientists
the L490 experience

Biology L490, Individual Research, is an experience that can change your life. (Equivalent courses are offered by Chemistry, Medical Sciences, and Psychology.) It's the only way to find out what life in a lab is like, so it's helpful in career and graduate school decisions. In addition, many L490 veterans say the experience of contributing to research has worked in their favor in job interviews or graduate school applications. Senior Dave Childress sums it up: "I have been told by several employers at job fairs, that candidates for jobs are in two categories: those who have undergraduate research experience and those who do not." Alumna Amanda Raff found a high-paying lab technician position after graduation because of her L490 experience (see story, p. 2).

Some students enroll in L490 to impress the admissions committees or employers mentioned above, but once involved in a project they find out that research is not what they expected it to be. In fact, many students find their research so fascinating that they change their plans on the spot. This year, at least four L490 students decided to pursue research careers rather than becoming M.D.'s. On the other hand, one student concluded that a life of research is not for him. Either way, research is an enlightening experience.

In addition to aiding in career decisions and giving students an advantage over their peers, L490 provides a unique education as well. Seeing a single project through from start to finish provides a more realistic perspective of research than regular lab courses. Instead of performing experiments which have been done before, you have the chance to participate in new discoveries. You can be a part of expanding the body of scientific knowledge. Senior Chetna Patel adds that "Doing research has made me feel that even I can be an integral part of discovering things that future generations may benefit from."

The opportunity to work with professional researchers is another valuable attribute of the L490 experience. The members of the lab: professors, postdocs, graduate students, and lab technicians, are available to share their experience and knowledge with the undergraduate student.
Soybeans in Space

Biology major Tonya Gillam had a hand in preparing canisters of soybean seedlings that took a trip around Earth aboard the Space Shuttle Discovery last month.

Last summer, Tonya was one of 37 students from around the U.S. who participated in the NASA Space Life Sciences Training Program at Kennedy Space Center in Cape Canaveral, Florida. As part of her training, Tonya worked on the Biological Research In Canisters 3, or BRIC-03, project. She helped test the experimental protocol to be used in February for BRIC-03, and collected data used to prepare for the project’s integration into the shuttle.

The BRIC-03 project involves 26 soybean seedlings growing inside a canister. The reason for taking the beans into space is to observe the effects of microgravity on the starch and lipid concentrations in the soybean cotyledons. Soybeans grown on a clinostat, which nullifies the gravity vector, have been shown to have increased lipid and decreased starch concentrations in their cotyledons. The objective is to examine the effects of microgravity on the nutritional value of a few key crops, to ensure that the researchers and astronauts involved in the assembly and function of the International Space Station will be healthy and motivated.

Tonya’s expenses during the summer were paid by the NASA Space Life Sciences Training Program, financed by Florida A&M University. She also received a Payne Award, a scholarship for Biology majors who have a 3.5 GPA or above. In 1994-95, Tonya received two prestigious scholarships: the Senior Achievement Award, from Honors Division, and the Distinguished Alumni Scholarship, awarded by the IU Distinguished Alumni Service Awards Club. Tonya has been accepted at the IU School of Medicine and plans to practice pediatrics or family medicine after completing her MD. Currently, she is conducting research in cholesterol synthesis and carcinogenesis in hypophysectomised rats under the direction of Dr. Goh in the Medical Sciences Program.

Dates to remember...

Application deadline for L490 summer internships (see page 2): Mar. 10.
Association of Women in Science (AWIS) meeting: Images of Ourselves Today and Tomorrow. Mar. 23, 6-8pm, SW113.
Application deadline, intercampus summer research awards (see page 2): Mar. 24.
Joan Wood Lecture: Dr. Kathryn Koch will speak on death and dying, medical issues for critical care, and women in the medical profession. Mar. 29, 4:30 pm, JH A100.
Indiana Collegiate Job Fair: 500 Ballroom, Indiana Convention Center/ RCA Dome, Indianapolis, Mar. 31, 10:00 am - 3:00 pm. (Call 855-0576 for registration information.)
Student Employment Office Summer Jobs Fair: Alumni Hall, Apr. 6, 1-4 pm.
Biology Awards Presentation: JH A100, Apr. 6, 4:00 pm. Reception immediately following in the Atrium.

Biologically Speaking Editorial Staff
Angi Bailey, Editor (JH 127, 855-6283)
Kathy Wyss, Editorial Consultant
UTI: a learning experience

The Biology Undergraduate Teaching Intern (UTI) program provides a unique opportunity for biology students. Participants serve as teaching assistants for biology courses. The experience of teaching develops communication and leadership skills, and permits insight into how people learn. Students planning to attend graduate school will reap additional benefits from being a UTI: working closely with AIs provides an opportunity to observe the teaching aspect of graduate student life. Most institutions require biology graduate students to teach.

Biology UTI Robin Harper is learning a lot from her experience as a UTI. This is her second semester working with L311, Genetics. Robin was looking for a biology-related job when she decided to apply to the UTI program. She was considering teaching as a career, so the chance to experience teaching appealed to her. Robin pursued a position in L311 - her favorite class as a student - because she felt it would be an interesting course to teach. She was right: participating in teaching has indeed been enjoyable and rewarding for her.

Robin finds the job most gratifying when she can see that she is helping a student. "When students understand the material because of my explanation," she says, the job is at its best. The small learning groups in her section of L311 help make this a common occurrence. Robin hopes to pursue a career in research, but thanks to the rewarding experience of being a UTI, she is also considering teaching high school biology.

Robin recommends the UTI program to students who "really want to help other students." She stresses that the job requires a commitment: the UTI has to realize that students will need the most help at peak exam times, which are probably the same times that the UTI will have exams of his/her own. There will be compromises to make. Her advice? Before applying to the UTI program, talk with the instructor (and a current or former UTI) of the course you're considering, to find out what the time commitment is really like and what will be expected of you. In addition, Robin stresses the basic requirements of a UTI: patience, communication skills, and organizational skills.

Being a UTI is not only an intellectually rewarding experience. The internship carries an award of $400 for the semester's work. In addition, UTIs are eligible to enroll in Biology L499, Internship in Biology Instruction.

WANTED
enthusiastic UTIs for these fall '95 courses:

| L100 | Q201 |
| L111 | L211 |
| L112 | L311 |
| L113 |

Pick up an application at the meeting on Thursday, February 2, at 7:30 pm in Jordan Hall A106.
Application deadline: February 10.
Advising update

The Biology Advising Office recently welcomed its newest member: Susan Woodard joined the department as an Academic Advisor last fall. Susan comes from the College of Arts and Sciences, where she served as an advisor for 4 years. During that time she was responsible for advising students in the Liberal Arts and Management Program, and coding degree requirements to IUCARE, the automated degree audit system.

Change in AUTHORIZATION procedure

For Summer 1995 only, you MUST apply for authorization to enroll in any of the following biology classes:

- Summer I L323, L465
- Summer II M310, M315, B351, B352, B364

Approval will be based on need and proximity to graduation. Authorization applications will be available in Jordan Hall A115 beginning March 1.

Peace Corps
Career Choices — Career Advancement

By giving others the benefit of your education and hard earned skills, you can also enhance your own career. Learn a foreign language. Gain work experience. A college education combined with Peace Corps experience produces career advancement.

Additional benefits include:

- $5,400 upon completion of service
- Student loan cancellation/deferment
- Graduate school opportunities

Your cultural background and skills are valuable. Use them to advance your career!

Contact Peace Corps for eligibility requirements.

TO SECURE YOUR POSITION AS A VOLUNTEER AFTER GRADUATION, CONTACT THE PEACE CORPS AT: 1-800-424-8580 (press option #1).

Check out BUGS
the Biology UnderGraduate Scene

for information on programs and deadlines relevant to Biology majors. BUGS can be found on the Jordan Hall Macintosh server, Darwin's Mac.

Email your suggestions for this newsletter to BUGS@bio.indiana.edu.

Contest

Cook Inc., a Bloomington-based manufacturer of medical devices, sponsors an annual competition among biology students. The student who writes the best paper describing the original design or modification of a medical device wins $1,000 cash

plus the chance for a summer internship with Cook Inc. Any student enrolled in a biology class during the 94-95 academic year is eligible to enter; pick up an information packet in Jordan Hall A115.

Sneak a peak at your career

Itching to get your feet wet, but don’t have the time or the credentials for a “real job”? Try your hand at volunteering. There are a multitude of opportunities for volunteer service in and around Bloomington. Volunteering can be a stepping stone toward a career, and it can help reinforce your conviction in your career choice. Or, it can be a way to experience something completely different from your professional plans. Either way, it’s a great way to get to know yourself - and lots of other compassionate folks - better. And you must admit, it also looks good on your résumé.

If your interest is in getting volunteer experience related to your career goals in biology, you might want to try one of the agencies listed at left.

If you’d like to gain some experience outside of your field of study, there are plenty of ways to contribute to your community. For more information, contact the Volunteer Students Bureau (IMU room 34 - third floor, above the Commons; 855-8290) or the City of Bloomington Volunteer Network (331-6430). Or, for a bird’s-eye view of ideas, simply check out “social service organizations” in the yellow pages.

Local volunteer positions require a range of time commitments (from a few hours per month to a few hours per week) and a range of experience or training. Some programs require attendance in a training program; others, a brief orientation.

Volunteer Opportunities in Allied Health

Bloomington Hospital:
- Cytotechnology & Medical Technology - Steve Deckard, 336-9435.
- Health Information Administration - Dennis Healer, 336-9475.
- Occupational Therapy - Reg Baugh, 336-9362 (call 7am-3pm).
- Physical Therapy - Betsy Myers/Jennifer Hoover, 336-9484 (call 8:30-9am or 4-5pm).
- Radiologic Sciences, Phil Lewis, 336-9446.
- Respiratory Therapy, Ed Gets, 336-9572.
- Therapeutic Recreation, Cindy Ingalls, 336-9255.

Bloomington Chiropractic Center, 332-6427.
Bloomington Convalescent Center, Luann Trester, 336-6893.
Bloomington Hand Rehabilitation Center, Sherry Bush, 332-4263.
Bloomington Meadows Hospital, Kim Gibson, 331-8000.
Fountainbleu Nursing Center, Jan Bays or Mary McDonald, 332-4437.
Hospice of Bloomington, Wendy VanderZee, 336-9818.
Monroe County Community Schools Special Education (occupational/physical therapy), 330-7700, ask for Mr. Horvath’s office.
Rebound, 332-6200 (857 Auto Mall Rd.), or 336-9333 (639 S. Walker St.).
Stat Lab (medical technology), Sandy Mercer, 332-8101.
Westview Nursing and Rehab Center (Bedford), 279-4494, ask for Rehab Dept.

For more info, visit the Health Professions & Prelaw Info Center, MX 021.

Biofest '94: a look at grad school

Biofest is an annual event sponsored by the Biology Undergraduate Initiative to provide information for Biology majors who plan to attend graduate school. To kick off this year’s festivities, a panel of graduate students presented information about their experiences with the admissions process. The panelists included students in the Department of Biology’s graduate programs, the IU School of Optometry, and the Department of Medical and Molecular Genetics at IUPUI.

Next up, keynote speaker Louis Myers talked about his experiences as an undergraduate student here at IU, then as a graduate student at Harvard, where he earned a Ph.D. in biology as well as a doctorate in law. Myers is currently an intellectual property attorney specializing in molecular biology patents, in Boston, Massachusetts.

Finally, representatives from various graduate programs within and outside of IU were on hand to provide information and answer questions. Free pizza and soft drinks were provided for everyone.

Mark your calendar: Biofest '95 is scheduled for October 25.
Careers in law

Interested in the law, but want a career related to biology? Whether or not you intend to attend law school, there are plenty of possibilities for those interested in a career that splices together biology and the law.

One possibility, for those who do attend law school, is a career as an intellectual property attorney. Louis Myers, Biofest '94 keynote speaker, works with a variety of intellectual property: patents, trademarks, copyrights, trade secrets, and other related information. A Ph.D. in biology, Myers specializes in molecular biology patents, representing universities and biotechnology companies.

For more information on careers in biology and law, visit the Health Professions & Prelaw Information Center (HPPLIC; Maxwell 021). The HPPLIC has a wealth of information about careers in law, including prelaw advisors who can help with long-range planning. Call 855-1873 for an individual appointment with an advisor to discuss credentials and applications.

In the Next Issue....
- Biology alumnus practices medicine at Bloomington Hospital.
- Advice from an IU grad at medical school.
- Opportunities for summer research.

Dates to remember...


Application deadline for fall semester Undergraduate Teaching Internships: Feb. 10.

Association of Women in Science (AWIS) February meeting: Using Computers on Campus to Reach the World. (Time/location: contact Liz Johnson, ejohnson@indiana.edu, 855-0739.)

Non-Profit/Social Service Job Fair: IMU Frangipani Room, Mar. 1, 10:00 am - 3:00 pm. Sponsored by the Career Development Center.

Last day to withdraw from a spring semester class with an automatic W: Mar. 8. (Courses that meet less than the full semester have other deadlines; see Schedule of Classes.)

Application deadline for summer research internships: Mar. 10. (Information and forms available in JH 127.)


Application deadline for intercampus summer research awards: Mar. 24.

(Information and forms available in JH 127.)

Joan Wood Lecture: Mar. 29. (The Wood Lecture Series provides a forum for students to interact with female scientists. The series was established in 1990 in honor of Wood, a genetic consultant who was a Biology alumna.)

Indiana Collegiate Job Fair: 500 Ballroom, Indiana Convention Center/ Hoosier Dome, Indianapolis, Mar. 31, 10:00 am - 3:00 pm. (Call 855-0576 for registration information.)

Student Employment Office Summer Jobs Fair: IMU Alumni Hall, Apr. 6, 1:00-4:00 pm.

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