

ANNUAL REPORT 2002-2003 DIVISION OF BIOLOGICAL SCIENCES

A. HIGHLIGHTS

1. INSTRUCTION – LECTURES/FACULTY

The Introductory Biology courses (BIOL 1103, 1107, 1108) have increased 10.4% in enrollment, BIOL 1107 and 1108 (introductory Biology for science majors) accounted for 1713 students while BIOL 1103 had 2222 students and BIOL 1104 had 835 students. The latter enrollment is a significant increase and justifies additional TA support (at least 4).

Teaching introductory courses such as BIOL 1104 and 1104 requires highly talented and well trained faculty who should teach these courses on a permanent basis. We are thankful to Dean W. Anderson for providing permanent funding for tenure-track assistant professorships for Dr. Norris Armstrong and Dr. Peggy Brickman who teach the BIOL 1103 and 1107 classes. Likewise we are grateful to Dean W. Anderson for the permanent addition of Prof Marshall Darley to teach BIOL 1104. He is also an excellent teacher and receives outstanding student evaluations. In fact he was given the Meigs teaching award this year. Prof Norris Armstrong who previously taught at Carleton College has already established himself as an excellent teacher for the academic year 2001-2002.

The Division of Biological Sciences is an administrative unit whose principle function is to offer Biology core courses, which are taught by faculty drawn from the various departments within the Division. All staff positions and the entire operating supplies and expense budget are used to support the Divisional course offerings. Consequently, many of the items requested in the annual Report memo do not directly apply to the Division of Biological Sciences as a budgetary unit. The responses given here do reflect the instructional activity of the Division and quality of the faculty who teach in the Division core courses.

Table 1 exhibits the Biology course enrollment for Summer 2002, Fall 2002 and spring 2003. Table 2 shows the number of enrolled Biology Majors for Fall 2002.

LECTURES

- All but two faculty involved in Division teaching is on the Graduate Faculty. **NO LECTURES IN DIVISION COURSES ARE DELIVERED BY GRADUATE STUDENTS.**
- We have split our introductory biology offering into separate sequences designed for science majors vs. non-science majors. This involved developing new syllabi and lab exercises for each course in the two sequences. **THIS ALSO INVOLVED THE RECRUITMENT OF DISTINGUISHED PROFESSORS TO TEACH THE LECTURE PORTION OF THE SEQUENCE DESIGNED FOR SCIENCE MAJORS.** In the last years, these have been the following faculty: Profs. A. Darvill and D. Dervartanian (Biochemistry); R. Malmberg, M. Darley, B. Palevitz, and A. Jaworski (deceased 2000 -

Botany); J. Crim and R. Damian (Cellular Biology); W. Anderson, J. Avise, J. McDonald, S. Wessler (Botany & Genetics).

- All faculty who teach division core courses are recruited and selected from the entire faculty in all Departments in the Division of Biological Sciences. As a consequence, we are able to staff our courses with the best teachers in the Division. Of the 15 faculty who have taught in the introductory sequences over the last three years, nine have received distinguished teaching awards.

Enhancement of biology majors studies and life: A graduation ceremony was organized in May 2003 at which all parents and graduating biology majors were invited. About 300 students and parents attended the ceremony. Certificates were awarded to each graduating senior on an individual basis. A reception was presented to seniors and their parents and family. All those who attended commented that it was an outstanding event.

Assessment of graduating seniors was performed by a questionnaire. Out of the 143 graduating seniors about 42% responded. The questionnaire inquired about the graduating senior's short and long-term goals. Generally students were applying to professional schools, or had applied, or were actively looking for jobs. Professional schools included Veterinary, Medicine, Dentistry, and Graduate School. The response rate of 42%+ was reasonable but we hope to improve this still further. One of the factors for the better response rate is the graduation ceremony. Students and parents prefer the individualized ceremony rather than the University's generic form.

2. INSTRUCTION – LABORATORY COURSES

Program Size

Enrollments for the 1000 level undergraduate Biology lab courses for the Academic year 2002-2003 were 1336 students in Biology 1103L, 419 students in Biology 1104L, 879 students in Biology 1107L and 918 students in Biology 1108L. These numbers reflect a 17% increase in undergraduate enrollment from last year.

Undergraduate Internship Program

Spring Semester 2002, a joint venture was initiated through the Division of Biological Sciences and the Department of Science Education in the College of Education. The program was developed and administered by the High School Science Curriculum Team of the Georgia Systematic Teacher Education Program (GSTEP). The team determined that Science Education majors are receiving adequate course content in their training, but are exposed to few if any examples of the "science as inquiry" teaching strategies they are expected to use in their classes, especially the laboratory component. Biology 1104 Lab course was selected for this trial run due to its inquiry-based teaching approach. This year, fifteen qualified undergraduate students

enrolled in the program. The interns assisted a graduate laboratory assistant (GLA) in one, weekly lab section throughout the semester and received 4 credit hours. Interns were asked to attend weekly prep sessions, direct one to three pre-lab introductions, and construct and grade quizzes and assignments. In addition, interns attended a one-hour, weekly reflection seminar led by Dr. Steve Oliver (Sci.Ed.) and Dr. Marshall Darley (Biology). This trial effort was deemed a great success. The interns gained valuable first-hand practical experience in using inquiry instruction. The students enrolled in Biol 1104L benefited by having an additional instructor in the lab with them. The GLA benefited by having the intern assistant and gained valuable mentoring experience. We are looking forward to fall and spring semesters with the number of interns increasing up to twelve.

Community Service

The Biology Division hosted several classes of students from surrounding area schools for a day of laboratory activities. In all, sixty fourth graders from the Madison County Elementary School, in the Spring of 2002, and seven Senior Honor's students from Monroe Comprehensive High School in Albany, Georgia, in the Fall of 2002, took part in the activities. The students spent the day in the laboratory running experiments designed to test the 5 senses, amplify DNA from hair follicles and follow the path of blood through a mammalian heart. In all cases, the students enjoyed themselves tremendously. We have talked with the Instructor at the Monroe Comprehensive High School and are again planning activities for Fall of 2003.

3. THE BIOSCIENCE LEARNING CENTER

Biology Education Assets

The Bioscience Learning Center continues to maintain an extensive library of biology related textbooks, science journals, and periodicals for use by undergraduate and graduate level students. This material is available for review within the Learning Center or for short-term checkout. Ongoing donations made to the library by the faculty of the Division of Biological Sciences ensure its continuing relevance.

The Learning Center staff actively works with the faculty of the division of Biological Sciences to create new opportunities for the use of technology in education at the University of Georgia.

Computer/Technology Equipment

The Bioscience Learning Center continues to offer reliable, accessible computer resources to Biology students. The Learning Center features forty-one computer workstations. Twenty-one of these workstations are Apple Macintosh computers that feature an unique configuration designed to facilitate the playback of digital media housed within the Learning Center. The other twenty machines are general-purpose IBM personal computers running Microsoft Office and other productivity applications.

The Apple Macintosh computers make use of Netboot technology built into Apple's Mac OS X operating system, which is provided free of charge to UGA facilities by the Regents of the University System of Georgia. This technology allows the computers to boot from a unified software image, which is maintained and stored on a server within the Learning Center. Because the computers share a common software distribution point, the machines remain identically configured at all times. This level of uniformity is essential to ensuring that every visit a student makes to the Learning Center is consistent and productive.

In addition to being uniformly configured, the Macintosh computers are optimized by their unique method of configuration to accept digital media from a centralized server for on-demand viewing by students in the Learning Center. This digital media currently features *Life's Greatest Miracle* by Nova, and will expand to include other resources from the educational community as well as resources produced by the faculty of the Division of Biological Sciences.

The IBM computers are used by the students to analyze their nutritional habits using Foodworks software by Nutrico. The Division of Biological Sciences was able to negotiate a site license with Nutrico that allows students to continue using the software free of charge to analyze their diets as long as they remain at the University. These computers also provide access to digitized images of the gel slides that students create in biology lab sessions, which can be reviewed and printed in the Learning Center.

When not in use for other purposes, both the Macintosh and the Windows based computers can provide basic word processing and spreadsheet applications and web browsers for accessing WebCT and ARCHES, as well as other Internet sites.

The staff of the Bioscience Learning Center plans to continue aiding the faculty of the Division of Biological Sciences to incorporate technology into the future biology instruction at the University of Georgia.

4. THE BIOLOGY PROGRAM AND ADVISING OFFICE

The Biology Program continues to grow as the number of majors increases and we add more activities, courses and opportunities that enhance each student's experience.

At least once a semester in advance of registration, every Biology Major visits the program office to make an appointment to see his or her advisor. Besides the university's requirement that every student see an advisor in order to register, we believe it's important that BIO majors are familiar with the information, activities and requirements associated with the program, as well as the people who work in the office. Each student is assigned a faculty advisor, and although they are free to change advisors, most stay with the same faculty member until they graduate. We feel it's important that students have the opportunity to get to know faculty well. We make a point of advising them to get to know faculty in all of their courses.

Always interested in instructional innovation, we created four new courses this past year: BIOL 1117L, BIOL 1118L, BIOL 3910 and BIOL 4910. BIOL 1117L and 1118L will allow

students who transferred to UGA with a major's introductory biology course without a lab to make up the deficiency by taking just the BIOL 1107 or 1108 labs. BIOL 3910, "Topics in Biology" provides division faculty with a course number they can use to trial offerings that expand upon subjects not normally addressed in our other courses. BIOL 4910, "Advanced Topics in Biology" allows faculty to cover timely topics of special interest to biology majors, particularly focusing on recent discoveries and technical literature.

The Biology Major listserv continues to be a great success. It allows us to get important or interesting information about research opportunities, careers, special programs, new courses and changes in requirements to our students quickly. It also allows majors to communicate with each other about biology.

Joseph Freeman, the Degree Program Assistant in our office, continues to bring valuable experience to the program. With a background in career planning, he recently added career counseling activities to our portfolio of services. Mr. Freeman offered about 40 seminars on career development, personal development, resume preparation and research opportunities this past year. Our students have eagerly taken advantage of his willingness to meet with them to discuss a wide range of career and academic issues. Joey has also expanded the research opportunities section of the program web site and is presently involved in compiling a list of potential faculty sponsors for use by students seeking research opportunities.

This past year we worked with the Career Planning and Placement Center to offer our students as well as other majors two workshops on Forensics and Biotechnology. The workshops are part of a new initiative and partnership with the Careers office called 'Century of Biology', which will feature regular programs on career opportunities and other subjects of interest to biology majors. The two recent offerings gathered experienced professionals to tell students about how they entered the field, what their work is like, internships and the kinds of career opportunities available. The forensics program included people in forensic computing and accounting in addition to professionals in forensic anthropology and molecular biology. With the Career Center's ability to recruit speakers and advertise program offerings, the programs were quite successful. About 150 students attended the forensics workshop alone. Late this spring, Barry and Francine Palevitz met with Charles Perry, a Career Center counselor, to plan programs for the 2003-2004 academic year. The fall offering will be 'Careers in Public Health'. Mr. Perry is already at work contacting potential panel members with advice from Barry Palevitz.

This past spring we held our annual reception and ceremony for graduating seniors and their friends and family. Attendance at these receptions continues to grow. About 300 people, including summer graduates and their guests, attended the spring reception. We were honored to have Vice President for Instruction Delmer Dunn, as well as Dean Wyatt Anderson, join us to congratulate the students during the recognition ceremony. In addition to honoring our majors, we now recognize students from other areas, including interdisciplinary majors, who have impacted our program. We again showed our wonderful video at the conclusion of the recognition ceremony. It is a composite of pictures of the UGA campus and Athens community, accompanied by sentimental music. Given UGA's dire financial situation, we did not receive institutional support for the reception this year. Consequently, we are exploring ways to fund the event next year. The reception is an important event in the lives of our majors. It's our way of

honoring them, recognizing their achievements, and thanking their parents personally for sending them to us. We also think it leaves a final, lasting, positive impression of the program in the minds of students and parents. That's why we want very much to keep the annual reception and ceremony going.

We continue to serve in an advisory capacity for the Biological Sciences Student Association and the American Medical Students Association. We provide them with advice and resources such as paper goods, drawing and writing supplies, typewriter, computer, copier and workspace in the Biology Program's office.

Dr. Palevitz, Coordinator of Advising, continues to make other contributions to the University and the major by serving on committees and contributing to events that help students. This past year he has served as a Fellow in the Franklin Residential College, presented a program on faculty expectations at Brumby Hall, represented Biology at Freshman Orientation and Georgia Preview Days, and served on the Freshman Convocation Committee. Both he and Mrs. Palevitz meet with prospective students (and their parents) who want to major in Biology after they matriculate at UGA. Both also have arrangements with coaches recruiting prospective athletes. This year Dr. Palevitz met with students referred by the swimming, track and soccer programs.

The Biology office is a busy place. Still, we encourage majors to visit us whenever they need advice or information, and sometimes just to 'schmooze' with a friendly, sympathetic person. We think the personal touch is an important adjunct to rigorous courses in our students' journey through the University and the Biology Major. We hope our support makes their academic life a little easier.

B. ASSESSMENT SUMMARY

This year the Biology Program assessed learning outcomes by using the data provided by Dr. Langford from the Health Professions Advising Office. The biology majors achievement on the Medical College achievement Test (MCAT), and the Dental School Achievement Test (DSAT) indicates to us that our biology majors scores are competitive with the top ranked schools in the country. We also received from Dr. Langford a copy of the acceptance rate of the biology majors into medical schools. Again our acceptance rate is competitive with the top ranked schools in the country. We are tracking our graduates through questionnaires given at the time of graduation and we are in the process of developing surveys to inform us of long-term, degree program outcomes.

We are developing a Total Quality Management (TQM) approach to improve the cognitive and affective domain of our students. This year two of our professors (Barstow and Darley) used formative student evaluations in Biology 1107 and 1108 to inform and improve the learning and affective outcomes in both lecture and laboratory. As a result, the approach to laboratory has become inquiry based and more use of technology and the internet is being utilized in lecture.

We have developed a web site to inform students about undergraduate research opportunities and have published the name of professors who welcome undergraduates in their research labs along with the titles of the BIOL 4960 and 4960H research papers that have been produced under their tutelage.

Table 1

**Division of Biological Sciences
Course Enrollment for Summer 2002-Spring 2003**

COURSE	SUMMER '02	FALL '02	SPRING '03
Biol 1103	105	979	1243
Biol 1104	0	332	280
Biol 1107	0	582	296
Biol 1107H	0	46	39
Biol 1108	0	259	576
Biol 1108H	0	12	63
Biol 1990	0	0	0
Biol/Ento 2010	0	341	327
Biol 2070H	0	0	0
Biol 2080H	0	0	0
Biol 2107H	0	29	9
Biol 2990H	0	23	24
Biol/BioChem 3100	139	315	311
Biol 3110L	24	48	47
Biol /Gene 3200	82	200	211
Biol/Gene 3200H	0	27	20
Biol /CBio 3300	54	0	59
Biol/CBio 3400	56	113	183
Biol 3410L	0	16	16
Biol /Ecol 3500	0	192	90
Biol /Ento 3590	0	0	13
Biol 3700	0	0	90
Biol /CBio 3800	0	0	73
Biol 3900	6	6	45
Biol/Ecol 4261	6	5	6
Biol 4910	0	0	9
Biol 4940	0	0	1
Biol 4960	14	23	33
Biol 4960H	28	25	44
Biol 4970H	3	6	12
Biol 4980H	1	3	2
Biol 4990H	0	2	5
Biol/CBio 5040	0	5	0
Biol /Btmy 6260	0	0	8
Biol /Btmy 6500	0	0	0
Biol/Btmy 6550	0	0	27
Biol /Gene 6600	0	14	0
Biol/CBio 7040	0	5	0
Biol 8000	2	0	1
TOTAL	520	3608	4163

Table 2

**Student Majors
Fall Semester 2002**

Biological Sciences

			Total	
			N	%
Major	Degree Level	Degree		
0115 Biology	Baccalaureate	Bachelor of Science	698	57.31
	Unclassified	Non-Degree	2	0.16
	Major Subtotal		700	57.47
0907 Biology – Pre Medicine	Degree Level	Degree		
	Baccalaureate	Bachelor of Science	27	2.22
	Unclassified	Non-Degree	1	0.08
Major Subtotal		28	2.30	
3115 Pre-Biology	Degree Level	Degree		
	Baccalaureate	Bachelor of Science	482	39.57
	Unclassified	Non-Degree	8	.66
Major Subtotal		490	40.23	
Total			1,218	100.00