Greetings from Graduate Education at the School of Medicine! This annual report is designed to present information of interest to those who manage graduate education centrally or individual programs. The Office of Graduate Education supports graduate programs and enhances postdoctoral training at the School of Medicine. This Office also oversees the Biomedical Sciences Training Program, the common admissions program for laboratory-based PhD students at the SOM. We work to support training grant applications, increase high quality applicants to graduate programs, monitor program activities and student accomplishments, increase program effectiveness, support diversity programs, communicate between programs and administration, and assist with postdoctoral programs. These activities are described below.

1. Training Grant Support. This Office works to provide principal investigators with key resources to make training grant proposals easier. Over two dozen NIH T32 training grants provide essential support for pre- and postdoctoral trainees in SOM programs. The Graduate Education Office collects common trainee information for use in training applications. In the last year, the Office of Graduate Education helped to prepare training information for 18 T32 and 1 R25 applications to the NIH (including new and competitive renewals; PIs included Noy, Martin, Dubyak, Brady-Kalnay, Brunengraber, Miller, Stacey, Drumm, Nelson, Karn, Kazura, Kirsch, Boron, Distelhorst, Cooper, Robinson, Schilling, Landmesser.) Of these, 6 were successful (2 first-time proposals), 9 were not and 4 are still under review.

A major initiative in Spring 2009 was the development of an interactive Filemaker database for preparation of training records required by the NIH. We contracted with Adatasol to build several information systems. The first was to create an interactive data system linking the electronic graduate application to faculty interview systems in the School of Medicine, and the second was to create the system to manage information required for the 12 NIH training tables. A significant improvement is the RSS-feed from PubMed that collects publications of our trainees. The Graduate Education Office migrated numerous Excel files concerning trainee activity and outcomes. Despite this advance, there is still considerable manual information work that will continue in Graduate Education to identify thesis titles, current job contacts, subsequent NIH grants, and other materials needed. The database contains PhD earners in SOM programs back to 1974, and includes 7700 names (3K faculty, 2K postdoc, 2K students), and 14,000 publications. The database and the reports it creates will be rolled-out to training grant directors and chairs this summer 2009. The database will allow us to collect and update common training information centrally, increasing efficiency in providing key, high quality training tables for new and competing proposals.
2. Recruiting. The Office of Graduate Education organizes and participates in numerous recruiting activities for our doctoral programs. We prepare wall poster mailings and interact at visits to graduate fairs and undergraduate institutions. A second major activity is the on-campus visits by 55 BSTP candidates during the Spring interviews. This schedule includes student interactions, faculty interviews, student data blitz, and social activities with hotel and airfare provided to students. In addition, this year,

- We prepared new wall poster/tear off and folded brochures on graduate education and mailed them to 163 regional and 1032 national departments of Biology, Chemistry and Mathematics, as well as MARC diversity programs. This list contains all Carnegie H and VH institutions.
- We mailed 2 postcards to GRE test-takers with a stated interest in biomedical research soliciting applications.
- We launched the new online common application within the CollegeNet application programs. We adapted the application to capture specific information as to research interests and experience as well as voluntary information on disadvantaged and other minority status.
- With services from our consultant Dan Weiss of Adatasol, we built alterations from the Contact Manager component of the application to facilitate campus visits and faculty interactions important for the admissions cycle.
- We opened “ask a student” section of the website for candidates to communicate with graduate students in their selected programs
- We increased graduate stipend to 25K effective July 2009
We solicited and reviewed exit surveys from all candidates who visited our program to learn what activities were effective or need improvement.

We organized and/or participated in visits to 23 national meetings, individual graduate fairs or seminars at undergraduate institutions to recruit candidates and entered information in our “prospects” database.

We disseminated information on summer internships to undergraduates on the web and at fairs, etc. The Office has a special interest in bringing diverse populations for summer internships with 10 undergraduates in the NHLBI summer program, and another 3-5 in SPUR.

This summer, we have updated our recruiting brochure and we are working on coordinated, program-specific cards.

3. Doctoral program admissions. Some 400 doctoral students are currently enrolled in doctoral programs at the School of Medicine, comprising just over 30% of all doctoral students at CWRU (These numbers do not include the Biomedical Engineering program that is a joint department between the SOM and CSE). The active doctoral programs offer a breadth of interdisciplinary training by faculty in a wide range of disciplines and departments. An additional 12 Master’s Degrees plus the professional Master’s of Public Health engage about 440 additional students at the SOM.

The total number of students enrolled in biomedical PhD programs has fallen each year since 2005 by approximately 15% overall despite the opening of a new PhD program in Molecular Medicine in 2007. This is due to steady graduation rates and falling admissions over this period. Dr. Martin Snider directs BSTP Admissions that involves representatives from each program that meet to identify candidates. In 2009, these program admissions representatives included Biochemistry (van den Akker), Cell Biology (Tartakoff), Genetics (Wang), Nutrition (Ernsberger), Pharmacology (Berdis), Neuroscience (Broihier), Pathology (Petersen), Molecular Biology (McDonald), RNA biology (Caprara), and Physiology/Biophysics (Romani).

Our focused efforts benefit graduate programs. For Fall 2009 matriculation, there was an increase in total domestic applications and admissions to BSTP from the previous year. **BSTP matriculated 23 students including 19 TGE and 4 URM** (from 55 accepted students, 42% yield; and from 90 total TGE and 288 total applicants). While enrollment may change slightly, **direct admit mechanisms matriculated 24 doctoral students including 3 URM** (Biochem 2; Epi/Bio 4; Genetics 1; Mol Med 10; Neuro 5; Pharm 1; Pharm 4; please note not all of the direct admit programs participate in BSTP). In the BSTP program, average GRE scores for matriculated students have ranged in the 65%-75% percentile for each subscore in the last five years. A significant drop from percentiles around 75%-85% was experienced in 2004 onward as the School began generally to accept domestic candidates and few international applicants. It is important to recognize that the GRE percentiles have held relatively steady and do not reflect a choice of quantity of student over quality.

A focused effort to raise the University profile may benefit admissions. When we asked students who declined our BSTP offer which other University they had chosen, all but four chose institutions that ranked above CWRU in US News and World Report.

4. Degrees Awarded and Outcomes. The outcomes from doctoral training reflect the excellence of our PhD programs, and the Graduate Education Office assists in tracking and compiling these data. The number of PhDs granted from all SOM programs...
combined has remained similar for the last five years at around 53 per year. Most programs state a requirement for at least one first author peer reviewed publication before graduation, in addition to the dissertation and defense. This scholarly activity is key to future job placement and “success” in the scientific endeavor. In active programs, students eventually had about four publications from their doctoral training. A PhD in one of the biomedical sciences at CWRU takes 5.5 years, on average, to complete. This timely completion is highly competitive nationally, and reflects the active annual review of all students by their respective programs.

A crucial measure of doctoral programs is the career outcome for its trainees. CWRU biomedical programs have outstanding outcomes, at least in the near-term after graduation. In a recent review of outcome placement, of all 134 PhD earners in SOM-based programs from 2005, 2006 and 2007 assayed for outcomes, 92 are now in postdoctoral or faculty positions, 26 are now in medical school or residency (influenced by MSTP students who return to the clinical component of medical school after the PhD), 16 are in other positions including industry or research institutes (e.g. Sloan Kettering). Our postdoctoral placements are among the best in the nation, with 75% of our trainees going to the top-25 research institutions, and 90% to the top-50 research institutions.

5. Diversity Activities. Despite making up 25% of high school graduates, only 16% of baccalaureate degrees in Biological Sciences and 5% of PhDs in Biological Sciences are earned by underrepresented minority students. CWRU School of Medicine doctoral programs are similar to other research-intensive programs at medical schools, with about 6% diversity. We utilize a comprehensive minority recruitment plan that includes publicizing the programs, targeting selected institutions and students, and working within established recruiting relationships between Case and undergraduate institutions nationwide. Many of these efforts rely upon coordinated efforts by Dr. Hall and Joseph Williams, Director of Multicultural Office in Student Affairs at the SOM. These programs include short-term research training for diverse students supported in part by a NIH T35 (Kevin Bunting, PI) as well as the SPUR program. In 2009 we received over 90 applications and placed 14 interns; the Scientific Enrichment & Opportunity Program directed by Dr. Nathan Berger provided diverse public high school students in the Cleveland area with a summer research experience in active biomedical laboratories. In 2006, Case began the NIH-funded Postdoctoral Research Education Program (PREP) to prepare recent minority college graduates for graduate school and the professoriate. This program supports Scholars to work in laboratories and complete coursework and professional development programs to be Graduate Education Office. Graduate Education sponsors the Minority Graduate Student Organization (MGSO) that holds monthly meetings at which issues of common interest are discussed, students present their research, and minority faculty discuss their career experiences. These recruitment and retention activities engage faculty research mentors and are essential diversity activities.

6. Postdoctoral Trainees. The Graduate Education Office assists postdoctoral trainees at the SOM. We support Dr. Carole Liedtke to organize and host monthly Professional Development Sessions and periodic workshops on grant writing (http://casemed.case.edu/gradprog/mentoring.html). We have an extensive website concerning career advice and opportunities and fellowships. The Graduate Education
Office works with the Office of Postdoctoral Affairs led by Rachel Begley to develop and implement policies that affect trainees.

7. Office Organization and Communications. The Office of Graduate Education is directed by Dr. Alison Hall (half time) and assisted by Ms. Sarah O’Keeffe (full time), Mr. Pete Spanos (half time), Dr. Martin Snider (10 % time), Ms. Debbie Noureddine (full time), Dr. Mike Harris (part time consultant), Dr. Carole Liedtke (part time consultant), as well as work-study students and other paid consultants as needed. The office is located in TG-1.

Dr. Hall reports to the Vice Dean for Research at the School of Medicine in bi-monthly meetings, and to the Dean of Graduate Studies in monthly meetings. Dr. Hall represents SOM graduate education interests on the executive steering committee of the Student Information System, the Graduate Mentoring Committee, and CWRU Research Showcase. Dr. Hall also serves on the steering committee of the MSTP, the Scientific Enrichment Opportunity program, and the Operations Committee and participates in the Basic Science and Academic Chairs monthly meetings to facilitate communications. She meets with staff in Communications and Development to promote graduate interests, and participates in the new faculty orientation each fall. The Office staff coordinates and produces a number of reports and contributes to policy development including the Survey of Graduate Students and Postdoctorates in Science and Engineering GSS/NSF the NRC survey and updates to the Graduate Bulletin. The Graduate Education Office assists in graduate program materials, and serves as the medical school resource for course action forms. In 2008-9 academic year, 90 course action forms were reviewed for changes in existing courses or proposed new courses. We have contributed to development of additional responsible conduct coursework to comply with NIH training grant initiatives and clarified compensation/supplementation practices. Dr. Hall also works closely with Dean Douglas on specific student issues as they arise.

Dr. Hall meets monthly during the academic year with the Graduate Program Directors of the 15 PhD programs at the School of Medicine, and the minutes are disseminated to Basic Science Chairs and posted on the Faculty Resources section of our website. The GPD members included Anatomy (Simpson), Biochemistry (Merrick), Bioethics (Marshall), Cell Biology (Tartakoff), Environmental Health Sciences (Veigl) Epi/Bio (Ilyngar), Genetics (Lou, Matthews), Mol Med (Stacey), Mol Bio (Viollier, will need replacement), Mol Vir (McDonald), Neurosci (Landreth), Nutrition (Whittaker, will be Lerner), Pathology (Smith), Pharm (Meyyal), Physiology Biophysics (Nosek). In 2008-9, issues discussed included: National Research Council survey results, Student Information System launch and Planned Program of Study, AAMC GREAT committee – national issues affecting graduate programs, Mentorship of graduate students and GSS mentoring guide, increasing PhD program admissions, Recruitment activities sponsored by Graduate Education/BSTP, New BSTP Application system, departmental website standardization, Graduate Education Taskforce and the Strategic Plan, revision of tuition payment mechanisms, PhD Earners’ outcomes (time to degree, postgraduation positions), graduate student expenses, Provost Program Review.

The Office of Graduate Education sponsors the Biomedical Graduate Student Organization, the Minority Graduate Student Organization and the Professional Skills Program that have monthly meetings for trainees. Dr. Hall also participates in Graduate
Program Reviews coordinated by Dr. Ornt (2008-9 included Biochemistry and Nutrition, upcoming 2009-10 reviews are planned for Genetics and Neurosciences) and she led efforts at the SOM for the Provost's Doctoral Assessment.

The office sponsors the "Art of Science" image contest with small cash prizes for images from trainees about their research. In 2009, we had 29 entries, with one grand prize and six other winners. Winning images contribute to our hallway decorations, brochures and other reflections of research, and the office has built up a substantial image library of trainees and their work for use in promotional materials.

The Graduate Education website (http://casemed.case.edu/gradprog/) leads visitors to our programs and activities, as well as directing prospective students to graduate admissions. The web is the main portal to our graduate and postdoctoral programs nationwide and is maintained in a timely and interesting fashion. It also serves as an important repository of policies, forms, and resources for trainees. The BSTP website (http://www.case.edu/med/BSTP/) provides details about that program. Tracking devices provide information about visitors. The Graduate Education Website had 20,000 unique visitors in 2008 calendar year, with 1890 returning visitors, with the "programs" "apply" and PhD" pages as the most visited pages after the home page. The most frequent referring page was the SOM Home Page, making cohesive revisions of these sites important. Both of these sites are undergoing an update in 2009 to be consistent with new Marketing styles and the SOM website.

Dean Davis recently requested two reports on Graduate Education. The first Strategic Planning Taskforce on Graduate Education was led by Dr. Hall to identify key issues for the next five years in strategic planning. Major recommendations from this report were to 1) align enrollment with research priorities 2) attract diverse students including international students 3) review tuition costs currently managed at departmental level, 4) create endowment funds for graduate fellowships 5) increase focus and value of graduate programs at the School of Medicine. A second Graduate Education Taskforce led by Drs. Hall and Chance was charged to address declining recruitment, an academic model that includes early selection of labs and core courses that may not be optimized, a financial model that is historical and unwieldy and a program that needs more cohesion across Departments and programs. This taskforce recommended that 1) tuition payments for all doctoral students be made by the Dean's office 2) the Dean cover all first year costs for doctoral students 3) stipends and fees be the responsibility of the PI after the first year 4) admissions from BSTP and direct-admit streams coalesce 5) and common curricular objectives be reviewed. Several of the objectives were designed to address financial issues that impacted programs, but shifting those responsibilities to the Dean is also financially challenging in the current fiscal environment.