To: Ron Irving  
Division Dean of Natural Sciences

From: Tom Daniel  
Chair of Biology

Subject: Diversity in Biology

Diversity is at the heart of biology. Our faculty and students study diverse creatures, use diverse approaches, and worry about maintaining biodiversity on the planet. We go to great lengths to ensure that our department fairly represents human diversity at every level – students, staff, and faculty. Still, there is ample room for improvement, and the efforts outlined below should help.

We believe that faculty and student diversity is vital for every aspect of our research, teaching, and outreach missions. Diverse faculty and students help us recruit the widest range of new faculty and talented graduate students and postdoctoral fellows, all of whom are central to the research enterprise. Our undergraduate teaching and research missions are enhanced by having a diverse faculty and graduate student population to serve as mentors and role models for students from every background. We believe that the public perception of the UW is strongly influenced by this diversity – public universities can play a leadership role in demonstrating that academic excellence is not bounded by gender or skin color.

In February 2003, the faculty in three programs (Botany Department, Zoology Department, Biology Undergraduate Program) voted to merge to form a united Biology Department. The new Biology Department has about 50 regular and research faculty members of which 36% are women; of the approximately 100 full-time Ph.D. students 52% are women. Since we are a new (one year old this month) department, much of what I write reflects an amalgamation of historic practices and current ones. In all three original programs, building diversity and changing culture were prominent themes. We continue and further refine these traditions in faculty recruitment and retention, graduate
Faculty Recruitment and Retention.
Aggressive recruitment and retention plans enacted by the department were instrumental in attracting appointments that would enrich both the cultural and academic environment in the department. To position these faculty members to succeed we were quick to recognize their outstanding scholarship through promotions. Our bet on success was borne out by the heavy recruitment efforts other universities placed on these colleagues.

We are currently searching for two open positions and have made particular efforts to identify applicants from underrepresented groups. We are interviewing 12 individuals for the two faculty lines. Again, our approach is to seek applications from diverse individuals, identify excellence in this context and try to attract to them UW.

Another key factor in diversity is our department’s strong involvement in the ADVANCE program run by Dean Denice Denton. We participate in their leadership training for our faculty, write grants to support cultural change (see below) and were involved in the search for its current administrative director.

Graduate Program

Our graduate program is a source of great pride in the department. Of our ca. 100 graduate students, 52% are female, 2% African American, 2% Native American, and 12% Hispanic. While this diversity does not reflect that in the society around the UW, it is much higher than that encountered in many Tier 1 Biology Programs. In many of the same ways that we develop diversity in hiring faculty, we do so in the graduate program. Our admission process is, at this time, gender blind because of the near equal mix of males and females. However, like all Biology departments, we must be aggressive in recruiting highly qualified applicants that build diversity in the department. To do so we:

- were awarded a special ARCS recruitment for minority applicants;
- have received GO-MAP fellowships from the Graduate School;
- invested $2000 in a recruitment brochure for building diversity in the biological sciences;
- have several departmental fellowships that have been, and continue to be, used to attract diverse students; and,
- devote departmental resources to fly in applicants of color for interviews.

A major part of our graduate program focuses upon building a culture of tolerance and vision for diversity. To support this we have been awarded a “Departmental Cultural Change Award” [from the ADVANCE Program] to create a seminar series and
symposium entitled “Transformations in Biology: Uncommon Leaders”. The purpose of
the seminars and symposium is to elevate awareness of the important contributions of
women and minorities as leaders in biology. Our own graduate students will take the
leadership role (see appendix) in identifying scientists who have transformed their
disciplines through a combination of research excellence, outstanding leadership, and
cultural change.

To help incoming grad students adjust to the substantial differences between grad school
and their undergraduate experience, the Department Chair and Associate Chair for the
Graduate Program have developed a new team-taught course entitled “Graduate
Professional Life.” In this course we discuss issues of special interest to
underrepresented groups, such as how to develop professional contact networks, find and
cultivate a supportive student-mentor relationship, and strike a balance between personal
and professional life.

**Undergraduate Program**

Our undergraduate program is burgeoning and we graduate nearly 500 students each
year. The size is both a source of pride and a source of great anxiety. Part of the
challenge is that students who come from backgrounds that did not benefit from the
facilities of top primary schools can get lost in the shuffle. To offset this we have a
variety of programs in place. There is room for improvement in each.

We offer EOP classes, BIOL 110, 111, 112 under the leadership of Dr. Millie Russell
who is a half-time lecturer in Biology. These classes, open only to EOP students,
introduce biomedical concepts and vocabulary, in an effort to provide enhanced
background to students who want to go on in a health science but need additional
preparation. In addition, professionals of color from the community are brought into the
classroom to talk about career possibilities and pathways. In addition, Dr. Russell, who is
also half-time in the Office of Minority affairs, is deeply involved both in a variety of
UW diversity programs and in the African American community. She attends many
community functions, professional meetings, and provides formal and informal contacts
for students of color with other UW programs and personnel.

**The Howard Hughes Medical Institute Grant** encompasses several programs that aim
to increase a student's passion for learning or teaching science, while concomitantly
increasing and retaining the number of participating women and underrepresented
minorities in science. Our programs are connected through direct interaction with one
another and through outreach programs that aim to establish pre-freshman bridging
groups. We support our students to remain in science by providing them with new
opportunities for both learning biology and doing research. Our students are strongly
couraged to participate in the other Hughes programs for which they are eligible. We
also attempt to provide as many opportunities for students to get involved in research by
creating new programs for undergraduate research and by providing students with
information about University of Washington and other national research programs that target undergraduates.

Our various Hughes Programs are as follows:

(1) Biology Fellows Program--We recruit 48 students (primarily freshmen, who come from a variety of backgrounds, are interested in a biological science major and show some need for extra help) to participate in this 3-quarter program. Students take a special seminar class (BIOL 106), taught by Dr. Clarissa Dirks, in which they discuss possible careers, what it’s like to be in a lab, as well as work on gaining critical thinking, quantitative, and writing skills that will help them get through our rigorous introductory biology sequence. They are provided with one-on-one and small group tutorial help (BIOL 113) as they go through BIOL 180, 200, 220. Former Fellows and members of TriBeta, our student group, provide guidance and mentoring to the younger students as Peer Mentors.

(2) Research Internship Program--We pay match 20 selected students, about half of which are drawn from the Biology Fellows Program, with a faculty mentor and pay them a stipend to do independent research for up to 2 years.

(3) Leadership Program--A new program that provides a unique opportunity for 12 U.W. undergraduates (selected Biology Fellows, Peer Mentors, and Research Interns) to participate in research while discovering the Costa Rican tropical rainforests. A group of 12 students, 3 local high school biology teachers, and 3 scientists will spend 2 weeks in Costa Rica where they will conduct an original research project and a community outreach project. Participants will experience how science is done as a team while learning about the culture and ecosystems of Costa Rica and building community amongst students of differing level and sophistication. The majority of travel expenses are covered.

Biology Tutor at the Instructional Center--The Hughes Grant, in conjunction with Mary Lidstrom’s National Human Genome Research Institute and the Office of Minority Affairs’s Instructional Center (IC), provides salary for a professional biology tutor, housed in the IC, to help students who need help in biology classes. This tutor works closely with IC staff and biology faculty and staff to help especially students struggling with BIOL 180, 200 and 220.

Recruitment for the Biology Fellows Program is accomplished through several avenues, many of which allow us to reach as many women and underrepresented minority students as possible. The university admissions office helps us to identify incoming freshman who are interested in science and provides us with contact information for a direct mailing list. Prior to the start of their first quarter, we send postcards to all eligible students. The postcards describe the Biology Fellows Program and invite students to apply. We also conduct a freshman orientation workshop that informs students about the program and other Hughes opportunities. Our Biology Tutor at the IC has helped us to work closely with the Office of Minority Affairs to encourage these students to apply to our programs. Through all of these methods we have been able
to achieve our goal of recruiting a diverse student population. During the first year of the Biology Fellows program, 72% of the participating students were women and 56% of all students were from underrepresented minority groups. Retention of these students in science and medicine is achieved by maintaining contact with our Biology Fellows, supporting them in their subsequent scientific endeavors, and encouraging them to participate in other Hughes opportunities that we offer.

Recruitment of women and underrepresented minorities into the Undergraduate Research Internship Program and the Friday Harbor Laboratory Apprenticeship Program is primarily accomplished by informing as many students as possible about these opportunities for doing undergraduate research. Throughout the year, we advertise our research programs at campus events such as: career symposiums, scholarship fairs, undergraduate research seminars, educational conferences, and the annual Hughes symposium. We also inform students of our programs through the Instructional Center, newsletters, bulletin boards, handouts, websites, and student organizations such as the Tri Beta Biological Honors Society. Using a broad advertising approach to inform numerous students, as well as directly recruiting from the Biology Fellows Program, helps us to recruit both women and underrepresented minorities into our research programs.

One of the most important aspects of the U.W. Hughes Undergraduate Programs in Science is to create a fundamental group association among all Hughes-based programs. To better create this sense of unity, we have developed the Biology Fellows Leadership Program, a program that allows undergraduates to work on a research project in Costa Rica. Upon completion of their research project, these students are placed in a leadership role for high school students and incoming Biology Fellows. Hughes Interns in the Leadership program serve as scientific mentors for the Biology Fellows. The overall goal of the field trip is to excite students about doing science and to allow them to learn how science is done as a team. The Mentorship program will allow students from our various Hughes programs to have quality interactions that will ultimately provide them with a sense of community. We feel that these scientific and personal interactions at an academic level will encourage students to get involved in other Hughes programs and help us to retain these students in the biological sciences.

TriBeta, our student organization, has developed a peer-tutoring program, again aimed primarily at students who want help with BIOL 180, 200 and 220. The department and the Hughes program join together to provide financial support for this community. Under the energetic and inspiring leadership of Marcel Tam, this program group is a source of great pride in the department.

Pipeline Project--We work with the Pipeline Project, providing a class and supplies for undergraduates who want to volunteer in the public schools. We also provide support for a team of biology students to work in the Alternate Spring Break Program, providing help and encouragement, and serving as role models, to kids in rural schools over Spring Break.

Summer Institute for Teachers, Quarterly Institute for Teachers--We provide hands-on evening and weekend workshops and a summer institute for middle school teachers, whose classes can be instrumental in inspiring kids to go into science careers. We also
fund requests for supplies, small equipment, and field trips from public school teachers who need help instituting inquiry-based projects. We hope to have a high impact through teachers, showing students that science is fun, interesting, rewarding, and accessible to them.

**UW-Community College Partnership**—We have a 1-week summer and quarterly Saturday workshops for community college biology instructors. We hope to provide instructors with up-to-date information on new advances, better linkage to our classes for transfer students, and an opportunity to network and share ideas. The community colleges are often the stepping stone between University of Washington and high school or return students.

**Climate and Culture in the Department.**

Leadership in the department needs as much diversity as any other segment. Here we have made efforts to have women take leadership roles through committee chairships, associate chairships and related activities. The historic Zoology Department went further and prepared collective statement about our value for diversity that is part of our strategic plan:

“..the department has a long and valued tradition of respect for peoples of diverse views, ethnic groups, and backgrounds. That tradition evolved from a conviction that intellectual and personal growth is feasible only in a positive, communal, and diverse environment that understands and encourages human differences and that fosters the constructive expression of ideas. Traditions can be maintained and enriched, however, only by constant vigilance and effort. Accordingly, the Department states its commitment to these traditions and values. Specifically, we will pursue an increasingly and collegial community of peoples, of ideas, and of approaches to our science. To implement this statement, we commit ourselves to the following:

- Members of the Department, individually as well as collectively, will promote and foster diversity. We will seek to maintain an environment that promotes freedom of inquiry, freedom of expression, and freedom of exchange.
- The Department will sponsor periodic forums to address issues of diversity, thereby ensuring that we remain sensitive to them. Moreover, we will apprise incoming graduate students, faculty, and staff of these issues and traditions.
- Members of our Department are expected to conduct themselves in ways that do not discriminate against individuals or groups based on sex, race or ethnic background, age, sexual orientation, marital status, disability, nationality, religion, or economic circumstances.

We will take immediate action should any member of the Department feel that she or he is the recipient of discrimination of any type. In the future, complaints will be forwarded immediately to the offices of the Chair of Zoology and the Dean of the College of Arts and Sciences. We also emphasize that all members of the Department should feel free to raise any issues of discrimination, including complaints, without
fear of reprisal.”

As mentioned above, we are among the first departments to become involved with the ADVANCE program and have aggressively sought support for cultural change through grants to raise awareness of the potential for leadership and diversity (see Appendix).

We have a long way to go to promote greater diversity in the leadership of our department. Much of what I outlined above is aimed at moving us in that direction.
Transformations in Biology: Uncommon Leaders
Tom Daniel (Chair)
Billie Swalla (Seminar Director)
Toby Bradshaw (Graduate Program Coordinator)

In February 2003, the University of Washington amalgamated three previous programs into a single Biology Department. The new Biology Department has about 50 regular and research faculty of which 36% are women; while 52% of the approximately 100 full-time Ph.D. students are women. While this department appears to be doing well in terms of number of female faculty, we are still below 50% representation.

Here, we propose to elevate awareness of the broad contributions of women and minorities as leaders in biology – people who have transformed their disciplines through a variety of avenues ranging from scientific contributions, to economic, social and political domains. Those who have changed the face of biology through leadership in mentoring, involvement in our government, raising public awareness, or discovering new research avenues.

Towards this end we propose to create a lecture series entitled “Transformations in Biology: Uncommon Leaders”. We plan something far more systemic than invitations to great speakers and hot scientists. We are aiming at raising the awareness of faculty and graduate students by uncovering stories of effective leadership in the face of daunting societal and cultural barriers.

Stage 1: This program will center around a course and lecture series that engages the entire department. Culturally, our research is very much centered with our graduate program. Accordingly, we have decided to have the graduate students take the leadership role in organizing the analyses of transformations. Our process will begin with a graduate seminar that will:

- Establish criteria to define transformations in biology (e.g. it might be a keynote discovery, a career of contributions, unparalleled mentoring model, significant government and policy changes, changing public awareness of biology, or any other set of criteria). The key here is that establishing criteria is itself an important exercise for emerging new biologists as they launch their own careers (recall we have more than 50% female students and we want them leaving our department as future leaders).
- Identify minorities and women who satisfy criteria established by the group. While there have been many historic contributions, we will focus on those individuals who are still active. In this way we can invite them to the UW to share their science and reflections.
- Develop a write-up for each individual chosen. This will include at least a portfolio explaining how specific choices made the person to the top 10 or 20, how we define the transformational changes derived from each of the selections, and how their actions changed our lives and/or work as biologists.
- Produce a website that explains the processes, the contributions of the top 10-20, and the rationale for choosing each as a person who has transformed biology.
• Invite a subset of the individuals to the University of Washington.

**Stage 2:** Visits by Transformational Scientists to the Biology Department. A tried-and-true method for getting internationally renowned individuals to accept invitations is to highlight the fact that their invite is derived from the student body, not a bunch of faculty cronies. We are confident we can attract to the UW, the top women and minorities identified by the above process. We would like to invite 3 people per year (1 per quarter).

Once here we would like to engage each “honoree” in both public and internal dialogs. At the public level, we will have a colloquium broadly advertised in which they present their contributions along with a short presentation from our students identifying the process underlying the selection of each honoree. This is, however, more than just a weekly colloquium. We will ask chairs of all Advance departments to help publicize the visit within their units and we will engage (with some work) the chairs of the basic science departments in the related colleges (School of Medicine, College of Ocean and Fisheries, and others). This is, after all, about women and minorities who have transformed biology; some will be highly relevant to non-advance departments. By this approach we will help spread the cultural change going on in Advance Program.

In addition to a high-profile lecture we will have each honoree spend time with emerging leaders (from graduate students to faculty) to reflect on how each person’s career choices affected the path they followed. What hurtles were in their way, how did they grapple with them, what advice would they have to give to our emerging leaders, how has the climate changes (if at all) during their careers?

The combination of a session of reflection and a public forum on the science will provide more than a role models for current and emerging leaders. It will help educate our students and faculty about some of the enormous hurdles that underrepresented groups continue to face in their careers. We hope this will inspire our students to leadership and raise awareness for faculty and students alike.

**Stage 3:** Outcomes and cultural change.

- Public Lecture: Raise awareness of leadership of women and minorities in biology
- Sessions with students & faculty focusing on career issues: help mentor a broader sector of the department. This is more than information for women and minorities—this is open to all members of the department as a learning session about how we can better promote careers of women and minorities.
- Website: a resource the goes well beyond the UW and the department.
- Pipeline issues: our graduate students become active participants in a program of recognition and cultural change.

The timing of this coincides as well with two national searches planned for the next year. The process of identifying leaders, focusing on diversity in leadership and bringing
leaders here can strongly influence the course of the search. It is even possible that one of these transformational individuals could be recruited to the UW!

Ideally we would like this to continue this process every year. This is the pilot program and future years will be supported by the department and, hopefully, the College of Arts and Sciences.

Co-PI’s Billie Swalla (Seminars), Toby Bradshaw (Graduate Program), Thomas Daniel (Chair)
Others: ALL DEPARTMENT MEMBERS: 100 Graduate Students, 50 Faculty.
Other others: Open invitation to all ADVANCE departments.

Spring 04: Graduate Seminar Series; Research Phase
Summer 04: Web site production, invitation of speakers, advertising speakers 1 & 2
Fall 04: Speaker 1, Advertising Speaker 2
Winter 05: Speaker 2
Spring 05: Speaker 3

BUDGET:

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Justification of Budget:
Dr. Billie Swalla is our Seminar Director and will help coordinate the visits and webpage development
A graduate TA/RA will help coordinate the visits, webpage development and the graduate seminar on “Identifying Transformational Individuals”
We budget 500/spkr for travel and housing, 500/spkr for honoraria.