## Year 3 Benchmarks Report 2005-2006 <br> Prepared by the URI ADVANCE Evaluation Committee

This report contains information reported during AY 2005-2006. Since last year, the College of Environmental and Life Sciences (CELS) has been restructured to include the Department of Biological Sciences.

Data for this year's report, similar to last year, were acquired through the University of Rhode Island's (URI) Human Resources Department. Furthermore, data for Social and Behavioral Sciences (SBS) have been disaggregated from the Science, Technology, Engineering, and Math (STEM) disciplines.

## 1. Number and Percent of Women Faculty in STEM \& SBS by Department

Of the 290 tenured and tenure-track faculty in Science, Technology, Engineering, \& Mathematics, including the SBS departments, women number 63, or $21.7 \%$ (see Table 1, Figure 1a). Without counting SBS, the percentage is now $18.9 \%$. Similarly, of the 55 non-tenure-track faculty in STEM, women number 17, a minor group of $30.9 \%$ (see Table 1, Figure 1b). The latter non-tenure-track category includes researchers, marine research scientists, and lecturer positions. Similar to last year, Biological Sciences (Full Professors $=50.0 \%$, Associate Professors $=100.0 \%$, and Assistant Professors = 33.3\%) and Psychology (Full Professors $=26.3 \%$, Associate Professors $=71.4 \%$, and Assistant Professors $=33.3 \%$ ) boast the highest percentages of female faculty. Sociology and Anthropology also has comparatively higher percentages of female faculty (Full Professors $=30.0 \%$, Associate Professors $=50.0 \%$, and Assistant Professors $=100 \%$ ) but is a relatively small department at URI, so is not an anchor in the ways that Biological Sciences and Psychology are (see Table 2, Figure 2).

Other departments across all other colleges do not house nearly the same numbers of women faculty as those already mentioned. Of note are departments where women are absent in the higher ranks, such as Full Professors or Associate Professors. For example, women remain absent in Full Professor positions in 5 out of 6 departments in the College of Engineering (COE) and 5 out 8 departments in the College of Environmental \& Life Sciences (CELS). Women Associate Professor ranks remain similarly sparse in those two colleges; they are absent in 4 out of 6 departments in COE and 3 out of 8 colleges in CELS (see Table
1). It should be noted that Biological Sciences, as a function of institutional restructuring, was moved out of the College of Arts \& Sciences and into CELS, boosting the latter college's ranks of women. Thus, any increases in representation of women in CELS cannot be attributed to institutional hiring or promotions.

Two departments within COE -- Civil and Electrical Engineering -- saw an increased representation of women faculty in the Assistant Professor ranks, due to hiring of 2 ADVANCE fellows (2004-05) in the Civil and Electrical Engineering departments.

The faculty in Biomedical Sciences, within the College of Pharmacy, is $23.1 \%$ female with 5 tenure-track positions held by women (see Table 2). These data will serve as baseline for this department in future reports.

Aggregated across all colleges, among all tenured and tenure-track positions, women remain outnumbered by men across all ranks, with the most striking differences in the higher Full Professor ranks (Full Professors $=12.6 \%$, Associate Professors $=39.5 \%$, and Assistant Professors $=43.8 \%$ ). The recent ADVANCE STEM hires in the Assistant Professor ranks have improved this percentage. Additionally, disciplines such as Psychology, Biological Sciences, and Sociology \& Anthropology, also help boost the numbers of women in STEM.

This year, because we acquired data from Human Resources, we were able to get a snapshot of faculty demographics at URI by gender, rank, and race. Though unsurprising, this image was nevertheless discouraging. While White women ( $n=52,18 \%$ ), though certainly underrepresented compared to White men ( $n=191,66 \%$ ), are present across all ranks in the STEM disciplines, there are no women faculty of color in the Full Professor rank in any of the STEM disciplines (see Table 3, Figure 3). Cumulatively, women faculty of color comprise $4 \%(n=11,4 \%)$ of the entire STEM faculty at URI. The implications of this multiple marginalization -- i.e. woman of color in STEM -- remain even more obscure than the implications of being a White woman in STEM.

Comparing 2006 data to 2003 baseline data offers a useful means of measuring progress since ADVANCE. As Table 4 indicates, the percent of women overall in STEM and SBS disciplines has risen from $16.5 \%$ to $21.7 \%$ overall since the beginning of the grant period, an increase apparent across all colleges. In the STEM fields alone, the average percentage increase is $5.3 \%$ Within STEM, Engineering ( $6.2 \%$ increase) and the Graduate School of Oceanography ( $6.8 \%$ increase) have shown the greatest increases, due largely to ADVANCE.

## 2. Number of Women in STEM who are in Non-Tenure Track Positions

We have identified non-tenure-track positions: Researchers (research professors and Marine Research Scientist in the Graduate School of Oceanography), Lecturers, Instructors, and other adjunct or temporary positions for which there are no union representation or tenure process. As noted earlier, women are largely underrepresented ( $n=63,21.7 \%$ ) across all ranks, across all STEM departments. Interestingly however, women comprise $30 \%$ of the non-tenure track positions. For example, in a number of departments -- such as Psychology, Sociology \& Anthropology, Civil Engineering, Electrical \& Computer Engineering, and Plant Sciences -- women comprise the entire (100\%) non-tenure-track workforce. In other departments, they comprise at least a majority of the non-tenure-track workforce (Chemistry 66.7\%, Cell \& Molecular Biology $50 \%$, and Biomedical Sciences $50 \%$ ). However, relative numeric parity in these ranks is misleading because these ranks carry little political influence in the University; these women have no faculty-union representation in these ranks, and often have a reduced decision-making voice in departmental or institutional policies (See Table 1, and Figures $\mathbf{1 a \&}$ b for details).

## 3. Number and Percent of Women in Tenure-Line Positions by Rank and Department

Of all ranks across all colleges, women are most densely populated in the lower ranks: Associate, Assistant, Lecturer, or other non-tenure-track positions such as Researcher (See Table $\mathbf{1}$ and Figures $\mathbf{1} \mathbf{a}$ \& b for details). There remains unequal representation of women across each position in individual departments and colleges. Most of the increases at the assistant level can be attributed to the hiring of ADVANCE fellows within the STEM departments.

## 4. Years in Rank and Years at Institution in STEM Fields by Gender

These data are also not systematically tracked within a centralized office at URI. The institution implemented a tracking database in 2003 that provides partial data that are not reliable across all cases. Despite the sophistication of the database, it remains unable to keep historical data, such as years in rank and years at institution. Such data as were accessible are included in Tables $\mathbf{5 a} \mathbf{~ \& ~ b}$; however, because of data unreliability, any meaningful comparisons are not recommended.

## 5. Voluntary, non-Retirement, non-Death Attrition by Gender for STEM Faculty

Exiting faculty -- tenured, tenure-track, or otherwise -- are not required to divulge reasons for leaving. At present, there are no institutionalized systematic means of conducting exit interviews upon a faculty member's departure. Thus, the data available are sparse and probably not reliable for revealing
meaningful exit patterns (see Table 6). ADVANCE is currently exploring the feasibility of conducting exit interviews with recently departed faculty.

## 6. Number and Percent of New Hires in STEM and SBS

The number and percent of new hires who are women has been steadily increasing since the advent of ADVANCE at URI. Two years prior to the start of ADVANCE, in an uncharacteristically heavy hiring year, women accounted for only $25 \%$ of new hires at the Assistant Professor level, although they comprised $80 \%$ of new hires at the Associate Professor level (See Table 7 and Figure 4). A year later (two years prior to ADVANCE) that figure dropped to $16.7 \%$ at the Assistant Professor level and $0 \%$ at the Associate Professor level. During the year prior to ADVANCE (2002-03), those figures began to be resuscitated; women were $29 \%$ of new hires at the Assistant Professor level. Since ADVANCE began in September 2003, the percent of women new hires at the Assistant Professor level has seen a steady increase, from $33 \%$ in 2003-04, to $60 \%$ in 2004-05, and $75 \%$ in 2005-06. There have been no female new hires at the Associate or Full Professor levels since 2000-01. However, starting in 2006-07, CELS has hired a female at the Full Professor level; her hiring was influenced by ADVANCE involvement in the search, as verified by the department chair. ADVANCE is continuing to explore the feasibility of female new hires in STEM and SBS without providing funding incentives to departments.

## 7. Number and Percent of Women in Faculty Leadership Positions

Administrative leadership positions for the purpose of this evaluation were defined as department heads, deans, associate deans, assistant deans, vice provosts, and provosts/vice presidents. Compared to previous reports, which counted all chairs, only STEM and SBS department chairs were included, and membership on powerful committees was added. Overall, however, there was little change in percentage since the baseline report. Of the 244 positions identified, 100 ( $40.9 \%$ ) were held by women (see Table 8). The positions with the highest percentage of women were Vice Provost (50\%), and Assistant Dean (100\%). Most notably, the position of Provost and Vice President of Academic Affairs is held by a woman, and she is the first woman to serve as Provost and Vice President for Academic Affairs of a New England land grant university.

Furthermore, each position was disaggregated into those held by an individual possessing a Master's degree or Ph.D. in STEM or SBS fields. Again, the position of Vice Provost had the highest percentage with only one individual having a STEM degree and being female. Of the six Associate Deans with a STEM background, one was female (5.9\%). The one Assistant Dean with a STEM background was male.

Of STEM or SBS department heads, 5 out of $24(20.8 \%)$ positions were held by women. This represents only a slight decrease ( $0.3 \%$ ) since the baseline report.

Of the program/center directors, 63 positions were identified. Women held 27 , or $52.9 \%$, of these positions. The analysis was not divided by STEM status due to difficulties in determining the background of these individuals.

This is the first year of reporting data on the membership on powerful committees, including the Faculty Senate and an aggregated count for other powerful committees (Council for Research, Graduate Council, Curricular Affairs, and General Education). Of these committee positions, 47 of 115, or $40.9 \%$, were held by women. This percentage is identical to the overall percentage of administrative positions occupied by women. When disaggregated by STEM/SBS status, 7 out of 42 faculty with STEM or SBS backgrounds were women. This equates to approximately $16.7 \%$ of those in STEM disciplines. The count includes individuals who held multiple positions. Four administrators also served on 2 committees, 8 administrators also served on 1 committee, and 10 individuals served on 2 committees. Therefore, the count reflects the total number of administrative and committee positions rather than the total number of individuals.

It should also be noted that for the purposes of this evaluation, a Masters degree or Ph.D. in a STEM or SBS field included all departments identified by the ADVANCE grant and in addition several departments identified as STEM due to the scientific background and experience required for their field. These included Nursing, Nutrition and Food Science, Pharmacy, and Physical Therapy.

## 8. Salary of STEM Faculty by Gender ( controlling for department, rank, years in rank)

A standard multiple regression was performed with salary -- converted to a base of 9 month contract and 1.0 full time equivalent (FTE) -- as the dependent variable and gender, race/ethnicity, departmental affiliation, current rank, and time at institution as independent variables. Only those faculty who were currently (as of 2005-06) employed (i.e. not retired or otherwise terminated), were in a tenured or tenuretrack position, and for whom ADVANCE had salary data, were included in the analysis.

An evaluation of assumptions associated with multiple regression included checks for multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals. All checks were relatively satisfactory. With the use of $p<.001$ criterion for Mahalanobis distance, three outliers among the cases were found. However, because there was a large sample size $(n=279)$ and none of the outlier cases had extreme scores, all three cases were retained for analyses.

Correlations between the variables are displayed in Table 9. The unstandardized regression coefficients (B), standard error (SE), standardized regression coefficients (B), semipartial correlations ( $\left(r_{i}^{2}\right.$ ), and significance test are displayed in Table 9. The model $R$ for regression ( $R=.75, R^{2}=.57, \Delta R^{2}=.56$ ) was significantly different from zero, $F(5,273)=71.84, p=.00$.

Three of the predictor variables contributed significantly to prediction of salary: current rank ( $8=.76, \mathrm{sr}_{\mathrm{i}}^{2}=$ $-.67, p=.00$ ), gender ( $6=.13, \mathrm{sr}_{i}^{2}=.18, p=.00$ ), and departmental affiliation ( $b=-.12, \mathrm{sri}_{i}^{2}=-.17, p=.00$ ). Altogether, $57 \%$ ( $56 \%$ adjusted) of the variability in salary was predicted by knowing a tenured or tenuretrack faculty member's current rank, gender, and departmental affiliation; such that full professors' salaries ( $M=98799.37, S D=14315.50$ ) are higher than associate professors' $(M=69486.67, S D=10007.85)$ or assistant professors' $(M=62184.46, S D=8032.09)$, men's salaries ( $M=92185.31, S D=18977.30$ ) are higher than women's ( $M=76277.66$, SD $=18737.55$ ), and professors in the Graduate School of Oceanography ( $M=105430.20, S D=19543.39$ ) have the highest average salary while those in Geosciences ( $M=75767.00, S D=18863.87$ ) have the lowest.

The role of gender as a predictor for salary should be interpreted with caution. First, some of its contribution to predicting salary may partially be explained by the disparity in the sheer numbers of tenure and tenure-track female ( $n=63,21.7 \%$ ) or male ( $n=227,78.3 \%$ ) faculty members (see Table 1). Put simply, all faculty ranks are populated by far more males than females $\left[\chi^{2}(2,279)=24.56, p=.00\right]$, with the most glaring disparity apparent at the Full Professor rank where females ( $n=25,12.6 \%$ ) are grossly outnumbered by males ( $n=174,87 \cdot 4 \%$ ).

Secondly, gender, current rank, and time at institution are related. This may be because URI, like other universities, has employed males in faculty positions longer than females, despite how it may appear from the figures in Table 4b; start dates for all faculty were not consistently available, thus the figures, though provided, do not necessarily represent reality. This is clear from the correlations between gender and current rank ( $r^{2}=.25, p<.05$ ), gender and time at institution ( $r^{2}=.11, p<.05$ ), and current rank at time at institution ( $r^{2}=.60, p<.05$ ). At the very least, these relationships indicate that none of these variables -gender, current rank, or time at institution -- can independently predict salary. ADVANCE is currently negotiating with a statistical consultant to help us analyze salary equity data while considering these inherently confounding relationships.

## 9. Start-up Packages of newly hired STEM Faculty by Gender

We continue to assess the feasibility of gathering passive indicators of start-up packages granted to newly hired STEM faculty. As with time in rank and time at institution, URI has no formal, centralized means of
tracking start-up package offers, except within the text of an offer letter. ADVANCE with its limited staff has not had the means to gather these data for a thorough, meaningful analysis.

An active indicator, a satisfaction survey, was distributed to all STEM faculty hired during AY 2004-2005, to obtain information regarding start-up funding and space accommodations offered to the new faculty. The survey was based on a similar study release by Kansas State regarding start-up packages. Twenty-three surveys were sent out, with three returned to date (13\%).

## List of Tables

1. STEM and SBS Departmental Faculty Gender Composition (Spring 2006)
2. Number and Percent of Women Tenured and Tenure Track Faculty in STEM and SBS by Rank and Department (Spring 2006)
3. Number of STEM Tenured and Tenure-Track faculty by Rank, Gender, and Racial Group (Spring 2006)
4. Number of Women by Rank and Percent Total Faculty in URI STEM \& SBS Disciplines - Comparison 2003-2006
5. (a) Years at Institution for Tenured and Tenure-Track STEM and SBS Faculty (Spring 2006), and (b) Years in Rank for Tenured and Tenure-Track STEM and SBS Faculty (Spring 2006)
6. Voluntary, Non-Retirement, Non-Death Attrition, by Rank and Gender (cumulative till Spring 2006)
7. New-Hires in STEM and SBS by year (till 2006-07 partial)
8. Faculty Leadership Positions (2005-06)
9. Correlations between Variables for a Standard Multiple Regression Predicting Salary for STEM Tenured and Tenure-Track Faculty ( $n=279$ )
10. Summary of Standard Regression Analysis for Variables Predicting Salary for STEM Tenured and Tenure-Track Faculty $(\mathrm{n}=279) \mathrm{s}$

## List of Figures

1. (a) STEM Tenure-Track Female Faculty(Spring 2006) (as a subset of all tenure-track faculty)
(b) STEM non-Tenure-Track Female Faculty (Spring 2006) (as a subset of all non-tenure track faculty)
2. STEM Tenured \& Tenure-Track Faculty by Rank \& Department (Spring 2006)
3. STEM Faculty Composition as of Spring 2006 (Rank $x$ Gender $x$ Racial Group)
4. STEM New Hires AY 2000-01 to 2006-07 (partial) (Tenured or Tenure-Track Faculty only)

Table 2. Number and Percent of Tenured and Tenure Track Faculty in STEM and SBS by Rank and Department (Spring 2006)

Table 3: Number of STEM Tenured and Tenure-Track faculty by Rank, Gender, and Racial Group (Spring 2006)


Table 4. Number of Women by Rank \& Percent of Total Faculty in URI STEM \& SBS Disciplines - Comparison 2003-2006

$\begin{array}{cc} & 2005-2006 \\ & \text { Female } \\ & \\ & \\ \text { Ass't } & \text { Assoc. } \\ 3 & 3 \\ 5 & 2 \\ 6 & 6 \\ 2 & 0 \\ 3 & 0 \\ 19 & 11 \\ 2 & 6 \\ 21 & 17\end{array}$


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Biological Sciences has been counted in CELS for both time periods

## Table 5a. Years in Rank for STEM and SBS Tenured \& Tenure-Track Faculty (cumulative till Spring 2006)


Table 5b. Years at Institution for STEM and SBS Tenured \& Tenure-Track Faculty (cumulative till Spring 2006)

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& \begin{array}{cc}
\begin{array}{c}
\text { @ Institution * } \\
\text { Male }
\end{array} \\
\text { M } & \text { (SD) } \\
10.92 & 5.63 \\
4.6 & 2.34 \\
0.38 & 1.19
\end{array}
\end{aligned}
$$

> Note: * Start date not consistently available, thus comparisons are
> unreliable.
> Source: URI Human Resources
Table 6. Voluntary, Non-Retirement, Non-Death Attrition, by Rank and Gender (Tenured \& Tenure-Track Faculty only,
Cumulative from Fall 2000 till Spring 2006)

Table 7. New-Hires in STEM and SBS by year

Assistant



Table 8. Faculty Leadership Positions

$\dagger$ includes those who hold multiple positions ( 10 individuals who each serve on 2 committees, 4 administrators who also serve on 2 committees, and 8 administrators who also serve on 1 committee) * not tabulated due to difficulties in determining field Source: URI directory
Table 9. Correlations between Variables for a Standard Multiple Regression Predicting
Salary for STEM Tenured and Tenure-Track Faculty $(n=279)$

Table 10. Summary of Standard Regression Analysis for Variables Predicting Salary STEM
Tenured and Tenure-Track Faculty $(\mathbf{n}=\mathbf{2 7 9})$
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SE B
1918.51
1033.81
1.54
127.56
867.97

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