



University of Alabama in Huntsville Title IX Compliance Review



**Department of Mechanical and Aerospace
Engineering**

**Office of Diversity and Equal Opportunity
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TABLE OF CONTENTS

I. INTRODUCTION.....3

- A. Background.....3
- B. Objectives and Scope.....3
- C. Methodology.....4

II. COMPLIANCE REVIEW ANALYSIS.....5

- A. Designation of Responsible Official for Title IX Coordinator and Enforcement.....5
- B. Adoption of Title IX Grievance Procedures and Title IX Policy Dissemination.....7
- C. Title IX Self-Evaluation.....10
- D. Recruitment, Outreach, Admissions, Enrollment, Retention and Completions12
- E. Program Administration and Academic Environment14

III. CONCLUSION.....18

APPENDIX A. SUMMARY LITERATURE REVIEW.....19

I. INTRODUCTION

NASA conducted a compliance review of the University of Alabama in Huntsville (UAH or the University) Department of Mechanical and Aerospace Engineering (MAE Department) graduate program, to ensure that beneficiaries of NASA grants have equal opportunity, without regard to sex, to pursue, participate in and benefit from academic, extracurricular, research, occupational training and other educational activities. The review was conducted under Title IX of the Education Amendments of 1972, and NASA's implementing regulations and policy, which prohibit discrimination on the basis of sex in educational programs and activities receiving Federal financial assistance.¹

A. Background

NASA conducted this compliance review pursuant to its Title IX regulations, which provide for periodic review of NASA grant recipients.² NASA's Title IX compliance program received further impetus with the July 2004 recommendation of the Government Accountability Office (GAO) that Federal agencies conduct onsite compliance reviews.³ In addition, the NASA authorizing legislation requires NASA to conduct at least two Title IX compliance reviews annually.⁴ The Agency has been involved in many Title IX related compliance activities since the regulations were issued in August 2000, conducting a number of limited scope "desk-audit" and onsite reviews of grant recipients.

B. Objectives and Scope

NASA sought to achieve the following key objectives in conducting this review:

Objective 1

Evaluation of UAH's compliance with NASA Title IX regulations, specifically to:

- assess the Title IX Coordinator's function and responsibilities; confirm the existence of Title IX policy and procedures and the quality of its dissemination; to evaluate Title IX grievance procedures and the effectiveness of their implementation; and to review Title IX self-evaluation efforts, specifically regarding the UAH programs under review; and
- examine in light of Title IX regulations the following elements of program administration: recruitment, outreach, admission, enrollment, and retention; academic advising; career counseling; research participation and classroom experiences; and policies/procedures and MAE Department student experiences relating to parental/marital status ("family friendly" policies) and safety; and, finally, recent faculty recruitment efforts.

¹ Title IX of the Education Amendments, as amended (20 U.S.C. §§ 1681-1688); Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance, 14 C.F.R. Part 1253; NASA Policy Directive 2081.1A, Subject: Nondiscrimination in Federally Assisted and Federally Conducted Programs of NASA - Delegation of Authority.

² See 65 Fed. Reg. 52,859 (Aug. 30, 2000). Enforcement Procedures, 14 C.F.R. § 1253.605 (incorporating compliance requirements of Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d)).

³ Government Accountability Office, *Gender Issues: Women's Participation in the Sciences Has Increased, but Agencies Need to Do More to Ensure Compliance with Title IX* (July 2004) (July 2004 GAO Report). Included in the Report's recommendations was that "the Administrator of NASA continue to implement its compliance review program to ensure that compliance reviews of grantees are periodically conducted." (p. 28).

⁴ See NASA Authorization Act of 2005, 42 U.S.C. § 16798(b).

Objective 2

To identify promising practices of the UAH MAE Department designed to promote gender equity; and to identify efforts consistent with the recommendations and focus of the July 2004 GAO Report, and to determine the extent to which promising practices are actually helping to create greater gender diversity in these UAH programs, including both students and faculty.

C. Methodology

1. Pre-onsite Review Activities

NASA developed a Title IX compliance review plan (CRP) to identify potential issues, relevant regulatory requirements, and the specific inquiries needed to conduct a thorough compliance assessment of its grantees. The CRP was developed in consultation with the U.S. Department of Justice (DOJ), Civil Rights Division, and the U.S. Department of Education (ED) Office for Civil Rights, the lead agencies on Title IX investigations.⁵

The CRP identified two focal points for compliance assessment: Title IX procedural compliance requirements and program administration (see “Objectives,” above). The CRP also identified the methods by which needed information would be gathered from recipients, including: information requests for statistical data and relevant policies and procedures, and an on-site visit to interview university officials, program faculty and graduate students.

2. On-site Compliance Review Activities

NASA conducted an on-site review of the UAH MAE Department on January 12-15, 2009. During its visit, NASA staff conducted one-on-one interviews with eight MAE Department faculty members (all three of the female MAE faculty members and five of the male MAE faculty, including the MAE Department Head), as well as the Dean of the College of Engineering, the Dean of the School of Graduate Studies, UAH Associate Provost, and the UAH Title IX Coordinator. NASA also conducted one-on-one interviews with 12 MAE graduate students (four women and eight men) and a “Town Hall” meeting with an additional eight students (seven men and one woman).

⁵ The plan was formed, in part, by a Title IX literature review that NASA conducted to better understand concerns regarding gender and STEM, and ways to address such concerns, including Title IX compliance efforts in the STEM context. (See Appendix A for a summary of the literature review.)

II. COMPLIANCE REVIEW ANALYSIS

The compliance review analysis provides an assessment of issues within the two focus areas of procedural compliance requirements and program administration. The recommendations are intended to strengthen existing compliance activities. Promising practices associated with each of the compliance areas are also reported.

A. Designation of Responsible Official for Title IX Coordination and Enforcement

1. Regulatory Requirements/Guidance

The NASA Title IX regulations state that a recipient must designate an official responsible for Title IX coordination and enforcement, a “Title IX Coordinator.”⁶ The recipient must notify all students and employees of the Title IX Coordinator’s name, office address, and telephone number.

2. Findings of Fact

UAH has designated the newly named Vice President for Diversity and Student Support, formerly the Vice-President for Student Affairs, as the Title IX Coordinator for the campus. She has a long history with the university, serving in a variety of capacities since 1984.

In her current capacity, the Title IX coordinator is responsible for Student Health Services, Disabilities, Multicultural Affairs, the Diversity Advisory Committee, Student Counseling Services, Judicial Affairs, the Title IX program and other areas related to student support and diversity. The Vice President for Student Affairs position was eliminated during the recent realignment at UAH. Portions of those duties have been assigned to the Dean of Students, who reports to the Provost. UAH is currently working through the separation of duties for the two positions (Dean of Students and Vice President of Diversity and Student Support) while the university considers skill and competency issues for the positions.

The Title IX coordinator reports directly to the President of the University. The current President came on board in July 2007 and thus far has conducted “on call” meetings periodically with his direct report staff. They have recently started to meet more regularly, about once a month. However, according to the Title IX coordinator, the President is very accessible by telephone or e-mail if they need to meet with him to address an issue.

Contact information for the Title IX Coordinator and her staff is disseminated in the UAH Staff Handbook and is available online through Office of Human Resources. Information is also located in the Student Handbook and online as well as in the UAH Undergraduate Catalogue. Additionally, the Office of Counsel provides this information and letters to students contain this information.

The Title IX Coordinator and her staff oversee all aspects of the complaint process, including intake, investigation and adjudication. Throughout her interview with NASA, the Title IX Coordinator displayed a thorough expertise of Title IX requirements pertaining to UAH internal discrimination complaints procedures. However, it is unclear based on interviews with the Title IX coordinator and the UAH Associate Provost, whether the Title IX coordinator will continue to oversee the complaints process, as that has traditionally been the role of the Assistant Vice-President for Student Affairs (see “Compliance Assessment” and “Recommendations,” below).

⁶ Designation of responsible employee and adoption of grievance procedures, 14 C.F.R. § 1253.135(a).

3. *Compliance Assessment*

NASA's compliance assessment focused first on the Title IX regulatory requirement to disseminate contact information for the Title IX Coordinator and her office.⁷ While MAE students interviewed during the onsite did not know the name or the office of the Title IX Coordinator, NASA has found in its Title IX reviews this is to be expected at a large institution. In addition, none of the students interviewed stated that he or she had ever had occasion to report discrimination or harassment. Nonetheless, it appears that the UAH Title IX Coordinator's office may need to take further steps to better ensure that students are provided with contact information (see "Recommendations," below).

While the NASA Title IX regulations do not provide further specificity regarding the role and effective functioning of the Title IX Coordinator, the U.S. Department of Justice (DOJ), which has oversight responsibility for all federal Title IX compliance and enforcement activities, has provided additional considerations for federal agencies evaluating recipient compliance with the Title IX Coordinator regulatory provision.⁸ These additional considerations appear in DOJ's document, "Questions and Answers Regarding Title IX Procedural Requirements" (Title IX Q&A).⁹ For purposes of this review, NASA focused on the following areas identified in DOJ's Title IX Q&A: 1) effective functioning regarding the administration and implementation of UAH's Title IX grievance process; 2) the provision requiring the training of UAH faculty and staff; and 3) the authority and access of the Title IX Coordinator to university senior leadership needed to effectively perform roles and responsibilities. NASA reviewed these roles and responsibilities in light of interviews with the Title IX Coordinator, review of information provided, and the breadth and depth of actions taken regarding this review.

NASA finds that the Title IX Coordinator effectively performs her duties regarding the implementation and administration of the grievance process (see "Grievance Procedures" section below). The Title IX coordinator possesses the skills and competencies necessary for the effective administration of the grievance process and related activities, including an in-depth knowledge of the Title IX regulation, a thorough knowledge of UAH's Title IX grievance procedures and processes, including the filing and investigative stages, and knowledge of UAH personnel policies and practices. She possesses a ready knowledge of the details pertaining to complaint processing, e.g., determining jurisdiction, as well as the approximate number of grievances filed per year and the number currently in the system.

NASA also examined the training efforts that the Title IX Coordinator and partner offices undertake on a regular basis, since training is a critical part of the tasks and responsibilities of Title IX coordination efforts.¹⁰ At UAH, the Office of Counsel and Office of Human Resources provide regular training on Title IX to faculty and staff. The training is not mandatory and a number of MAE Department faculty stated that they do not recall having the training. The Title IX Coordinator's office provides a workshop to the graduate teaching assistants and graduate research assistants during their orientation training, offered during the fall semester, which covers Title IX. However, several graduate student teaching assistants who began their duties in the spring semester reported not having taken the training or even having been aware that it was being offered. Additionally, no workshops or Title IX training are provided for students generally. Such efforts are particularly important so that students know how to access the process, including where to go and with whom to speak, should they have a concern regarding discrimination or harassment.

⁷ 14 C.F.R. § 1253.135(a).

⁸ See Executive Order 12250, 3 C.F.R., 1980 Comp. 298. Section 1-203 of the Executive Order states that "[t]he Attorney General shall develop standards and procedures for taking enforcement actions and for conducting investigations and compliance reviews."

⁹ This document is accessible at <http://www.usdoj.gov/crt/cor/coord/TitleIXQandA.htm>.

¹⁰ See Title IX Q&A, "Designation of Title IX Coordinator – What factors should a recipient consider in designating a Title IX Coordinator?"

Finally, there appears to be a lack of clarity regarding whether the current Title IX Coordinator will continue to perform functions associated with UAH's internal discrimination complaints process that needs to be resolved.

4. Recommendations

a. Broader Dissemination of Title IX Coordinator Contact Information. The Title IX Coordinator's office should expand its efforts to ensure that contact information for the office and the Title IX Coordinator is broadly disseminated. While contact information for the Title IX Coordinator is available online through the Office of Human Resources, UAH should ensure broader dissemination of this information through posting on the Diversity website and via periodic, e.g., annually, email messages to students and faculty.

b. Enhanced Title IX Education and Awareness Efforts. UAH should ensure that graduate teaching assistants are provided with Title IX training opportunities prior to beginning their work, e.g., training during both the fall and spring semesters. In addition, workshops or other training opportunities on Title IX and related topics should be provided for the general student population, to ensure that they are fully aware of UAH's Title IX policy, especially the process for raising a Title IX or related concern. Finally, the Title IX Coordinator's office should work closely with the Office of Counsel and the Office of Human Resources to ensure that faculty, especially new faculty, receive Title IX training on a periodic basis. It appears that the level of interaction and partnership between the three offices in regard to training may need to be increased, both to enhance the training opportunities provided and to avoid redundancy of effort.¹¹

c. Clarification Regarding Title IX Coordinator's Role in the Complaints Process. UAH should immediately clarify the extent of the current Title IX Coordinator's roles and responsibilities, especially regarding the handling of Title IX complaints.

B. Adoption of Title IX Grievance Procedures and Title IX Policy Dissemination

1. Regulatory Requirements/Guidance

The NASA Title IX regulations require that recipient educational institutions adopt and publish grievance procedures providing for prompt and equitable resolution of student and employee complaints alleging any action that would be prohibited by Title IX.¹² The regulations do not specify a structure or format for the grievance procedures.

NASA's Title IX regulations also require grant recipients to take specific and continuing steps to notify students, employees, applicants for admission and employment, and unions or professional organizations having collective bargaining or professional agreements with the recipient, that it does not discriminate based on gender in the educational programs or activities that it operates, and that it is required by Title IX not to discriminate in such a manner.¹³

¹¹ In this regard UAH states: "We are in transition and currently addressing the continuity of training for Graduate Teaching Assistants and Research Assistants through the Spring semester. Sexual Harassment training is included as a part of the current training. The Dean of Graduate Studies will expand training, beginning Fall 2009, to be more inclusive of Title IX issues and sexual harassment concerns. As recommended, the Office of Counsel and the V.P. for Diversity will be included in the training in Fall 2009 and Spring 2010." See Delois H. Smith, Vice President for Diversity and Student Support Services, email to David Chambers, Senior Civil Rights Analyst, June 5, 2009) (hereafter cited as "Smith email").

¹² Designation of responsible employee and adoption of grievance procedures, 14 C.F.R. § 1253.135(b).

¹³ Dissemination of policy, 14 C.F.R. § 1253.140.

2. Findings of Fact

UAH's Title IX grievance procedures are embodied in the "Discrimination Grievance Procedure" (Grievance Procedures).¹⁴ In addition, UAH has separate "Guidelines on Sex Discrimination" addressing sexual harassment and related matters.¹⁵ Under the Grievance Procedures, anyone in the University community may file a complaint alleging a violation of the institution nondiscrimination policy. Allegations of harassment are covered under the Grievance Procedures; there is not a separate procedure covering such allegations.

The Title IX Coordinator explained that individuals may initiate complaints or grievances directly to her office, contact directly with her office. Once an individual has made contact with her office, she immediately notifies the individual of his/her rights and the procedures.¹⁶ Complaints generally fall into one of three categories: "alert only" (when the individual does not wish to file a complaint); "formal process" (when the individual completes the complaint form and wishes to proceed with the University internal process); and "external process," (when the individual wishes to go directly to a Federal agency, e.g., the U.S. Department of Education, or another external venue, including State or local). Regardless, the individual is provided with the available options to assist in making an informed decision.

If the individual elects the UAH Grievance process (internal), the formal process is initiated and the case goes to the UAH Judicial Affairs Office for investigation/resolution. The process relies on "Preliminary Action Officers" (PAOs), appointed to carry out investigation into the matter, facilitate voluntary resolution and make findings and recommendations on action to be taken by the University, where appropriate. PAOs are selected based on recommendations by Chairs and Deans of the departments and approved by the President of the University to serve in that capacity. PAOs are trained by the University Office of Counsel.

Complainants have additional appeal rights to the President of the University. Complainants also are advised that they may file a complaint with the U.S. Department of Education or another Federal Agency if they receive an unfavorable resolution during the grievance process. The Title IX Coordinator's office provides this information.

The Title IX Coordinator explained that in the University environment it is difficult for students to file anonymous complaints. If students don't want their identity revealed, her office will try to collect enough information to go to the Department Head and get the situation addressed. However, if the allegations are serious, for example in harassment cases, the alleged harasser may request specific information on the alleged incidents, so it is difficult for anonymity to be provided.

UAH informed NASA that its Title IX policies and procedures are disseminated by means of the UA Huntsville Catalog and UAH Student handbook, which is made available both in hard copy and on the University's website.

Finally, the school periodically reviews its policies and procedures for updating. Every two years at the time of the reprinting of Handbooks, all content is reviewed by all departments and the university attorney.

¹⁴ UAH Student Handbook, Sec. 6.8, accessible at http://www.uah.edu/student_life/handbook/StudentHandbook2006-08.pdf

¹⁵ Accessible at: <http://dos.web.arizona.edu/uapolicies/ouap5.html>.

¹⁶ PAOs are University employees appointed by the receiving official, normally the Title IX coordinator and the Vice President for the University division in which the respondent of the complaint is employed. PAO's duties include conducting complaint investigation, attempting voluntary resolution, and preparing written reports to the Vice President in which the respondent resides regarding the need for formal proceedings in the matter. See UAH, Grievance Disciplinary Procedure, Sec. 6.

3. *Compliance Assessment*

NASA’s compliance assessment seeks to ensure that UAH developed and is implementing procedures that afford grievants “prompt and equitable” resolution of student and employee complaints alleging any action that would be prohibited by the Title IX regulations.¹⁷ As the regulations do not provide any further specificity regarding the procedures, NASA consulted the U.S. Department of Education (ED) Office for Civil Rights and DOJ publications for additional guidance. For example, ED OCR states in guidance that “[a] grievance procedure . . . cannot be prompt or equitable unless students know it exists, how it works, and how to file a complaint.”¹⁸

In addition, NASA’s assessment of UAH compliance with the regulatory provision requiring dissemination of Title IX policy was informed by relevant ED OCR and DOJ guidelines.¹⁹ This guidance emphasizes the need for recipient institutions to have “well-publicized” grievance procedures.²⁰ ED states that “without a disseminated [sexual harassment] policy and procedure, a student does not know either of the school’s policy against and obligation to address this form of discrimination, or how to report harassment so that it can be remedied.”²¹ In addition, DOJ regulations make federal funding agencies and recipient institutions responsible for disseminating information materials, e.g., handbooks, manuals, pamphlets, to ensure program beneficiaries are aware of their rights pursuant to EO law.²² Using this as a measure, NASA notes that the UAH procedures are well disseminated both in print materials and on UAH websites.

Regarding UAH’s grievance procedures, as the regulations do not specify a structure for the procedures, NASA looked to the DOJ Title IX Q&A for additional considerations on the basic components of effective, i.e., prompt and equitable, grievance procedures.²³ Based on these considerations, NASA finds that the procedures and their implementation afford students prompt and equitable treatment. Specifically, the procedures state that “All phases of a complaint shall be completed as expeditiously as possible under the circumstances. The University is committed to resolving complaints of discrimination without undue delay.” In addition, the procedures are written clearly, with each step in the process set forth, and clear distinctions made between faculty, staff and students regarding the appropriate venue, such that individuals seeking to engage the process know both how it works and where to go to raise a concern. While the procedures do not expressly state that complainants are not limited to the university’s internal procedures but have rights under both federal and state laws, which have their own deadlines for filing of complaints, this information is provided to complainants when they engage the process.

¹⁷ 14 C.F.R. § 1253.135(b).

¹⁸ U.S. Department of Education, Office for Civil Rights, “Revised Sexual Harassment Guidance: Harassment of Students by School Employees, Other Students, or Third Parties,” (Jan. 19, 2001), § IX. Prompt and Equitable Grievance Procedures (accessible at <http://www.ed.gov/about/offices/list/ocr/docs/shguide.html>.) (OCR Revised Sexual Harassment Guidance).

¹⁹ See, e.g., U.S. Department of Justice Civil Rights Division, *Title IX Legal Manual* (Jan. 11, 2001), § V.E., p. 111 (accessible at <http://www.usdoj.gov/crt/cor/coord/ixlegal.htm>); OCR Revised Sexual Harassment Guidance.

²⁰ See, OCR Revised Sexual Harassment Guidance, Preamble, “Enduring Principles from the 1997 Guidance.”

²¹ OCR, Revised Sexual Harassment Guidance, § V(D), “The Role of Grievance Procedures.”

²² Public dissemination of Title VI information, 28 C.F.R. § 42.405(c).

²³ For example, the Title IX Q&A states that recipient grievance procedures are a mechanism used to determine whether a particular act, policy, or practice of a recipient complies with Title IX regulations Title IX Q&A, “Grievance Procedures.” The Title IX Q&A states that for those recipients who do not have Title IX grievance procedures or for those recipients who want to refine existing procedures, the Department of Education’s guidance document, “Title IX Grievance Procedures: An Introductory Manual,” (Education Manual) provides some of the basic components for such procedures. This document is accessible through the U.S. Department of Education at <http://eric.ed.gov/>. The grievance procedures should also provide the steps necessary to correct the policy or practice that does not comply with Title IX regulations Ibid. Additionally, recipients should inform the grievant of the right to file a discrimination complaint with an appropriate federal agency, either simultaneously with the filing of an internal grievance or after the unsatisfactory resolution of a grievance.

The Title IX coordinator and the MAE Department report that there has not been a formal or informal complaint of discrimination or harassment in the department filed in the past five years, the period for which NASA sought information.

Finally, a review of UAH's website shows that UAH Title IX policy and procedures, which are contained in the UAH Student Handbook, are readily accessible online such that individuals wishing to access the process should be able to find them easily. The UAH Student Handbook is prominently featured on websites of both the Office of Student and Affairs and the Judicial Affairs Office.

4. Recommendation

Dissemination of Additional Title IX Informational Materials. UAH may wish to develop and disseminate a poster on "Equal Educational Opportunity" under Title IX and related laws, and post it in high traffic areas, including common rooms in dormitories and the Student Union, similar to its "Equal Employment Opportunity: It's the Law" poster. UAH may wish to use as a template NASA's poster "Equal Opportunity: It's the Law/Know Your Rights and Responsibilities." In addition, UAH may wish to disseminate an electronic version of the NASA brochure, "Nondiscrimination and Equal Opportunity in NASA Assisted Programs: Title VI of the Civil Rights Act of 1964 and Related Laws," (which includes information on Title IX) by posting on the Title IX Coordinator's office website and by forwarding the document to current students in the MAE Department working on NASA-funded research. Electronic copies of the posters have been provided to UAH.

C. Title IX Self-Evaluation

1. Regulatory Requirements

The NASA Title IX regulations required recipient institutions to conduct a Title IX self-evaluation by September 29, 2001 and to keep the self-evaluation on file for three years.²⁴ While UAH is not obligated to conduct a further Title IX self-evaluation, such evaluations are very helpful to ensure, for example, that selection criteria or academic practices do not adversely impact students. They also provide an opportunity to evaluate trends over time and to develop mechanisms for addressing emerging issues.

2. Findings of Fact

In response to NASA's information regarding self-evaluation efforts, UAH provided copies of its "Minority Participation Reports 2003-2007" and its "Affirmative Action Annual Reports 2003-2007."²⁵ These reports describe participation broken down by gender for students and faculty. Also, UAH reports that it conducted an assessment of the undergraduate and graduate enrollment in the MAE Department in preparation for NASA's review. This assessment shows that the percent of women enrolled in the MAE undergraduate program was fairly constant at 15 percent over a four year period, while the MAE graduate female enrollment declined from 17.4 percent to 9 percent of the graduate MAE enrollment over the same four year period. UAH concludes that "it appears that women do not pursue graduate engineering education with the same consistency as [men]."²⁶ Further, UAH states that the decline in women's enrollment correlates well with its decrease in research funding and the fierce competition for women engineers.

²⁴ Self-evaluation, 14 C.F.R. § 1253.110(c).

²⁵ See Delois H. Smith, Vice President for Student Affairs and Chief Diversity Officer, UAH Response to NASA's Office of Diversity and Equal Opportunity Request for Information Title IX Compliance Review, October 15, 2008, Attachments V and VI (hereafter "Title IX Compliance Response").

²⁶ Title IX Compliance Response, pp. 10-11.

UAH data show a similar decline in the graduation rates of women in MAE, from 21.4 percent of MAE graduates in May 2005 to 12.1 percent of MAE graduates in May 2008. UAH describes women's enrollment and graduation percentages as consistent with national trends, and stated that the healthy job market in the Huntsville area makes it extremely difficult to attract and retain women for graduate degrees.

Finally, the Title IX coordinator stated that she plans to conduct a campus climate survey to assess how students view diversity at UAH. The climate survey will include a thorough review of student perceptions regarding university policies and practices.

3. Compliance Assessment

NASA appreciates that UAH competes for women engineers with both private industry and government. Nevertheless, NASA remains concerned that a much lower percentage of women are enrolled in the graduate MAE program than the undergraduate program and the number has declined over the past four years. An effective self-evaluation on the part of UAH and the MAE Department needs to take a closer look at the reasons for the lower numbers of women in the graduate program, and what can be done to prevent further decline (see Section D for further discussion of MAE Department recruitment, admissions, and enrollment).²⁷

The UAH responses to NASA's information request under the instant review constitute the beginning of a Title IX self-evaluation of the MAE Department regarding two key components: admissions and treatment of students.²⁸ In addition, the UAH College of Engineering is developing efforts which should assist self-evaluation efforts (see "Promising Practices," below).

4. Recommendation

Continuing Self-Assessment Efforts. NASA recommends that the MAE Department continue to examine and evaluate admissions, enrollment, retention rates, graduation rates, and other statistical data on a regular basis as required under NASA's regulations.²⁹ The University and the MAE Department need to use the data to identify whether there are barriers to equal opportunity based on gender. If the data show declining numbers of women in the graduate program, the University needs to explore the reasons, and ensure it is not the result of intentional or unintentional gender bias in Departmental processes, procedures, or practices. This type of ongoing analysis will enable the MAE Department and the College of Engineering to stay informed on emerging trends and react appropriately.

5. Promising Practice

Website Enhancements. The College of Engineering plans to significantly enhance its websites to provide customized information on where specifically visitors to its webpages are focusing their attention. The Dean of Engineering stated that these enhancements should greatly assist the Engineering program, including the MAE Department to better understand the interests of students that are investigating us and the pattern of where they go on the web helps us to see their interests. NASA notes that the extent to which the Engineering websites include information regarding gender, including images of gender diversity, will help the program to better understand interests of students specifically in this regard, thereby assisting self-

²⁷ In this regard, UAH states that: "Efforts are being made in this area and challenges are being addressed to deal with this issue that is reflected as well at the national level. The pool is small, corporate sector competition is stiff and these numbers will likely remain low unless other recruiting and retention measures are addressed. Additionally, funding has declined from eight million to four million, therefore retention and competition is greater." See Smith email.

²⁸ 14 C.F.R. § 1253.110(c).

²⁹ This is required under the NASA regulations at 12 C.F.R. § 1253.605. Note that the requirements to collect such data are codified in NASA's Title VI regulations at 14 C.F.R. § 1250.105(b).

evaluation efforts. Changes are currently being made this Summer 2009 and final upgrades will be made Fall 2009.

D. Recruitment, Admissions, Enrollment, and Degrees Earned

1. Regulatory Requirements

The NASA Title IX regulations state that recipients may not discriminate on the basis of sex in admissions and recruitment.³⁰ Consistent with this requirement, NASA reviewed the MAE Department's student recruitment practices and examined graduate male and female participation rates in the areas of admissions, enrollments, graduation rates, and graduate assistantships. NASA requested and received five years of data from the University.

2. Findings of Fact

a. Recruitment

According to the Chair of the MAE Department, the graduate MAE Program primarily recruits from its undergraduate program and in the surrounding area of northern Alabama. The best undergraduate MAE students, including many women, are identified early and encouraged to continue in the graduate program. During exit interviews, graduating undergraduates are again informed that the MAE will support them with financial assistance if they stay for a graduate degree. Faculty members also respond to students from other schools who contact them with an interest in the Program, and the Department receives referrals from the Dean of Graduate Studies.

MAE has a problem with PhD production for both males and female. MAE is finding it increasingly difficult to persuade undergraduates to continue in the graduate program. The Huntsville area offers tremendous employment opportunities for engineers. Students are very employable and receive job offers with a bachelor's degree. Many bachelor degree students decide to take a job and attend graduate school on a part-time basis. Some of these students earn a master's degree, but very few earn doctorate degrees. As a result, MAE's PhD production has declined over the past five years from a peak of eight degrees in academic year (AY) 2004 to two in AY 2006.

The new UAH president has set a goal of increasing the number of doctorates awarded by UAH to 100 per year (currently 25-32 per year). He has given MAE "marching orders" to expand its recruitment efforts outside of Alabama. The Dean of Engineering at UAH recently established a Recruitment Committee to develop strategies for increasing enrollment in graduate engineering programs. One strategy will focus on increasing the enrollment of women and minorities in graduate programs.

b. Admissions

NASA reviewed application, acceptance, and matriculation rates to the MAE graduate program for AYs 2005-2007.³¹ The data indicate a total of 351 applications to the graduate MAE program for the three year period, including 32 women (nine percent) and 319 men (91 percent). Twenty-one of the 32 female applicants (66 percent) were accepted into the Program, compared to 245 of the 319 male applicants (77 percent). Of those who were accepted, nine of the 21 females (43 percent) matriculated into the Program, compared to 113 of the 245 males (46 percent) who matriculated into the Program.

³⁰ Admission, 14 C.F.R. §1225.300; Recruitment § 1253.310.

³¹ Title IX Compliance Response, pp.3-4. The University did not maintain records of applicants' gender prior to AY 2005.

UAH notes that in this regard that matriculation depends on funding and the number of female applicants and that UAH's status is consistent with national norms.³²

c. Enrollment

NASA examined enrollment rates in the MAE graduate program for AYs 2003-2007.³³ Female enrollment in the Program declined from 17 percent in AY 2003 to 9 percent in AY 2007, the combination of a sharp drop of female enrollment in AY 07 from prior years, with little change in overall enrollment in the program.

d. Degrees Earned

NASA reviewed MAE graduation rates for AYs 2003-2007.³⁴ Not surprisingly, the downward trend for degrees earned by females is similar to the decline in enrollment described above for the five year period. In AY 2003, women earned 19 percent of the graduate degrees (masters and doctorates combined) awarded. In AY 2007, women earned 12 percent of the graduate degrees earned. The peak year for women earning degrees was in AY 2005, when women earned 26 percent of the MAE graduate degrees. No women earned MAE doctorate degrees for three consecutive years, from AY 2005-2007.

e. Graduate Assistantships

NASA compared research and teaching assistantships awarded to males and females by the MAE Department for AYs 2003-2007. The number and percent of females receiving graduate research assistantships (GRAs) dropped sharply from AY 2003 (n=20, 37 percent of GRAs) to AY 2007 (n=7, 11 percent of GRAs). The number and percent of females receiving graduate teaching assistantships has remained stable over the five year period (average of 6 per year for 15 percent of teaching assistantships).

3. Compliance Assessment

NASA finds the low application rates for women to the graduate MAE program troubling. On average, only nine percent of applicants to the graduate program have been female for AYs 2005-2007. According to University officials, the undergraduate program has been the primary source of applicants for the graduate program, and 15 percent of the UAH undergraduate MAE program was female for the same time period. Adding to NASA's concern is that the application and acceptance rates for women are trending downward over the three year period examined. Only eight of 140 applicants were female for the most recent year (AY 2007), only three of them were accepted by the graduate program, and only one of them actually enrolled (out of 42 students that matriculated that year).

NASA believes the low numbers of women in admissions, enrollment, graduate research assistantships, and degrees earned, as described above, can all be traced back to the lack of targeted recruitment by the MAE Department. The Department, by its own description, has relied on limited local recruitment, interest from its own undergraduate students, and students from other schools who initiate contact with UAH. Up to this point, the MAE Department has made little concerted effort to expand its recruitment sources to attract greater numbers of quality female applicants. When asked why undergraduate females are deciding against graduate degrees, the MAE Chair and other faculty stated that they are getting good job offers with their bachelor's degrees and many of them are accepting job offers with the intention of later attending graduate school part-time.

³² See Smith email.

³³ Ibid, p.4.

³⁴ Ibid, p.5.

4. Recommendations

- a. National Recruitment Targeting Women. NASA recommends the MAE Department expand its recruitment outside of Alabama, and utilize recruitment events that target women, such as the National Society of Women Engineers' (SWE) annual Career Fair. UAH should send faculty and students to recruit at these events.
- b. More Proactive Recruitment by MAE Faculty. NASA recommends that MAE faculty become more proactive in contacting prospective graduate students, rather than relying on students to contact them. In this way, they can ensure they are talking with interested male and female students.
- c. Expanded Use of Distance Learning. NASA recommends that UAH explore whether expanded use of distance learning by the graduate MAE Program would increase participation by women. This could include surveying graduating undergrads during exit interviews and examining the demographics of current distance learners.
- d. Increase Number of Female Faculty. NASA commends the MAE Department for its efforts to increase the number of women on its faculty, and recommends the Department continue in these efforts. The increase in female faculty will signal to prospective female applicants that women are welcome in the program, and increase the direct exposure of male and female students to successful women engineers. Female faculty could add gender diversity to recruitment efforts and the Graduate Admissions Committee.

E. Program Administration and Academic Environment

1. Regulatory Requirements

The NASA Title IX regulations provide that a recipient shall not, on the basis of sex, exclude from participation in, deny the benefits of, or otherwise limit any person in any advantage or opportunity pertaining to academic, extracurricular, research, occupational training, or other education program or activity operated by the recipient.³⁵ The Title IX regulations explicitly state that a recipient may not discriminate on the basis of gender with regard to career counseling or guidance.³⁶

The NASA Title IX regulations include a detailed provision on matters pertaining to marital and parental status.³⁷ Generally, under the regulations, a recipient may not apply any rule concerning a student's actual or potential parental, family, or marital status that treats students differently on the basis of sex. Regarding pregnancy and related conditions, the regulations state that a recipient may not discriminate against any student, on the basis of the student's pregnancy, childbirth, false pregnancy, termination of pregnancy, or recovery, unless the student requests voluntarily to participate in a separate portion of the program or activity of the recipient.

In addition, the Title IX regulations incorporate by reference the NASA Title VI regulatory provision prohibiting a recipient from utilizing methods of administration which have the effect of defeating or substantially impairing accomplishment of the objectives of the program for an individual based on sex.³⁸

On the basis of these provisions, NASA examined the overall academic environment in the MAE Department, including academic advising, career counseling, research participation and classroom

³⁵ Education programs or activities, 14 C.F.R. § 400(a), (b)(7).

³⁶ Counseling and use of appraisal and counseling materials, 14 C.F.R. § 1253.425.

³⁷ Marital or parental status, 14 C.F.R. § 1253.530.

³⁸ Enforcement procedures, 14 C.F.R. § 605.

experiences, parental/marital status (“family friendly”) policies and physical safety of the program environment.

2. Findings of Fact

a. Academic Advising and Career Counseling

NASA’s interviews with faculty and students regarding graduate advising focused on the experiences of students in the advising process. Male and female graduate students interviewed described positive and productive advising relationships and stated that they observed no differences based on gender in the way they were advised. No faculty member or teaching assistant stated that a student had come to them with a concern regarding discrimination or harassment in recent memory.

Students interviewed stated that they did not use the campus Career Services Office, indicating that they received assistance with their job searches directly from MAE faculty, who for example, have sometimes made telephone calls on students’ behalf. Students interviewed stated that they did not notice any difference based on gender with respect to receiving job search assistance from faculty.

b. Research Participation/Classroom Experiences

NASA spoke with students about their experiences and observations in the lab and the classroom, and with faculty and administrators about their efforts with regard to research participation of students and classroom interactions.

NASA notes with approval that all students interviewed reported highly positive and rewarding research and classroom experiences in which interactions with faculty and peers were appropriate and respectful.

The faculty had a number of observations and insights into ways to help the program to appeal to a more broadly student body through research participation and curriculum enhancements. For example, the Dean of Engineering described a service-oriented project in which teams of engineering students and faculty provide the community with engineering services. The project has had multiples positive outcomes: the students are afforded an opportunity to utilize their skills and capabilities in a “real-world” setting, the community benefits, and the institution benefits from the work (see “Promising Practices,” below). The Dean said this project resonated with the students, in particular the SWE student chapter.

In addition, the Dean said that he has talked informally with faculty regarding curricular enhancements at the undergraduate level. Such adjustments would be geared in part to making the program more appealing to a more racially and gender diverse study body, as well as to establish a more diverse pool of candidates for the graduate program. In particular, the Dean has talked with faculty about the possibility of developing a generalized course that cuts across disciplines within engineering so students can get a feel for the different disciplines and the societal implications of the various disciplines. In addition the course would bring in engineers as guest speakers and lecturers, including female and minority speakers. The Dean said he believes these kinds of efforts are important for showing students “how far they can go in the field.”

In terms of showing support for engineering students, the Dean said that in addition to partnering with groups such as SWE on recruitment (see p.13 above), he is meeting regularly with student organizations, and encouraging the faculty to mentor students as a way of providing role models.

c. Parental/Marital Status (“Family Friendly” Policies)

UAH’s equal opportunity policy expressly states that the University does not unlawfully discriminate in any program or activity on the basis of sex (including marital or parental status).

UAH reports that no graduate students in the programs reviewed requested leave for childbearing and/or dependent care in the past five years. NASA’s review of UAH’s information responses and interviews with faculty, graduate and undergraduate students indicate that the programs reviewed are generally supportive of family-friendly concerns, and have been responsive to the challenges presented by marriage and parenting. In addition, UAH reports that currently the UAH Faculty Senate is addressing a Maternity leave policy.³⁹

d. Safety

Concerns around physical safety in the program buildings were mentioned by several students and faculty during interviews. For example, many students and faculty noted that the MAE building is somewhat isolated on campus and the parking lot is not well lit, with one student stating parking lot lighting “leaves much to be desired.” Also there appeared to be little knowledge of available services, e.g., night-time escort services.⁴⁰

e. Overall Academic Environment

Based on NASA’s review, the MAE Department has created a welcoming environment to a diverse student body. Students interviewed uniformly stated that, in their experiences, interactions with faculty and other students in the classroom and labs settings were appropriate and respectful. Two female students stated that this was a welcome change from their undergraduate programs, where such was not always the case. One male student stated that, in his estimation, the MAE Department and UAH in general do an excellent job of maintaining a clear focus on academics and research. This observation was echoed by other students. For example, in the Town Hall Meeting NASA conducted, students agreed that the MAE Department is not a place where inappropriate behavior, related to gender or otherwise, would be tolerated.

NASA commends UAH for its efforts in this regard. In particular, we note the efforts of the Associate Provost, the Dean of Engineering, and the MAE Department Chair, who all spoke about specific actions and plans they have in place for establishing and maintaining inclusive environments that can appeal to a broadly diverse academic community.

In his interview with NASA, the UAH Associate Provost stated that UAH has been very successful in creating positive learning environments for its engineering students, but that more can be done. For example, he notes that in MAE, they could use more women faculty. This would help to improve the perception of a welcoming environment. However, he believes that it is important for faculty, regardless of their gender, to be supportive of students. Also, in creating supportive learning environments for students, there are a number of things that they are already doing, in addition to having supportive faculty. For example, the programs bring in a number of speakers in a variety of venues that help to, among other things, provide role models to students and widen students’ exposure to female engineers and scientists. However, a number of students stated they were unaware of the program.

³⁹ See Smith email.

⁴⁰ In this regard, UAH reports that “[e]nhancement of lighting in and around parking lots is routinely evaluated, but will be reassessed by Facilities and Operations Management and the Chief of Police/ Office of Safety.” Smith email.

In addition, UAH applied for an ADVANCE grant a few years ago that was not funded. To address this, UAH brought in a consultant who conducted a workshop for faculty on writing grant proposals for specific federal agencies. UAH plans to apply again for an ADVANCE grant.

Also, the Associate Provost plans to begin training this semester on diversity, recruitment, anti-harassment, and related matters, including Title IX. The one-day training will start with the Deans and Chairs, to be repeated when new Deans and Chairs assume their responsibilities. Once all the Deans and Chairs have been trained, the training will be expanded to all faculty.

3. Compliance Assessment

NASA examination of whether students were treated differently or otherwise limited, on the basis of gender, with regard to academic advising, research participation and in their classroom experiences, including whether there was any indication of sexual harassment by faculty or graduate students in positions of responsibility indicated no differences between males and female students regarding advising and career counseling. The review indicated no differences between male and female students regarding lab participation or classroom experiences, and in fact, it appears based on interviews with students and faculty, that interactions in the classroom and lab settings are appropriate and respectful, with no indication of inappropriate gender related remarks or conduct.

NASA examination of UAH policies and faculty/student experiences in the MAE Department regarding parental/marital status in light of relevant regulatory provisions did not indicate different treatment, impact, or other limitation on program participation based on gender with regard to the University's or the MAE Department's policies relating to parental or marital status. However, NASA found MAE's family-friendly policies to be informal and applied on a case-by-case basis. One faculty member noted this informality allows the Department to be more flexible than would a formal policy. NASA notes with concern that informal policies can be applied inconsistently resulting in favoritism or a perception of favoritism. Conversely, formal policies ensure consistency and fairness and can be advertised and used as a recruiting tool for both graduate students and faculty.

NASA examination of UAH policies and student experiences in the MAE Department regarding safety in light of relevant regulatory provisions indicates there are some concerns among students and faculty, with concerns expressed by both males and females regarding safety. However, NASA's review did not indicate that any student's program participation was limited based on gender with regard to UAH or safety/security policies and procedures. Nonetheless, some of the concerns were of a serious nature, e.g., reports of an armed robbery on campus, and indicate the need for enhanced measures in this regard (see, "Recommendations," below).

4. Recommendations

a. Undergraduate Program Curricular Adjustments. UAH's Engineering may wish to consider exploring more fully efforts to make adjustments to the early undergraduate engineering curriculum, to help the program to appeal to a more diverse student population, and create greater diversity in the pool of candidates for the graduate program.

b. More Effective Information Dissemination. MAE may wish to consider a mechanism for better publicizing its seminar-speaker series, such as emails to all students.⁴¹

⁴¹ In this regard UAH states: "This issue has been addressed in part, but information is now being stratified to specifically target graduates and undergraduates respectively." Smith email.

c. Formalized Family-Friendly Policies. UAH should consider formalizing its family-friendly policies. Formal policies would better ensure their consistent and fair application. Also, formal policies could be widely disseminated and used as a recruitment tool when recruiting graduate students and faculty.

d. Enhanced Night-time Safety Measures. UAH may wish to explore ways to enhance such measures, including better lighting in the parking lot near the MAE Department, broader dissemination to students of available services, e.g., night-time campus police escort, and consideration of a campus shuttle service that runs at least in the evening hours.

5. Promising Practices

a. Service-Oriented Student Engineering Work. The UAH Dean of Engineering, in his previous capacity as a professor in Industrial and Systems Engineering, organized a number of service-oriented student engineering projects. For example, he organized a group of about a dozen industrial engineering students to upgrade the storage facilities of a local non-profit's organization building. As Dean, he continues to work with faculty and students to identify service-oriented projects as a critical component of the curriculum, providing students the opportunity to use their engineering skills and capabilities in the community.

b. Exposure to Role-Models. The MAE graduate program runs a weekly seminar featuring speakers and forum-type discussions. The speakers are professional aerospace engineers, both men and women.

c. Family Friendly Policies. Among other things, UAH provides its graduate students with a ten percent discount and priority placement for their children at the University Preschool Learning Center.

III. CONCLUSION

NASA finds UAH to be in compliance with the Title IX regulations. Overall we find that UAH is meeting EO requirements regarding its Title IX coordination, grievance procedures, and policy dissemination efforts. However, while we find that the UAH and MAE Dept. are proactively working to maintain an inclusive and welcoming academic environment, we note that the MAE Dept. faces challenges, particularly with regard to the recruitment and retention of women in the graduate program. The numbers of women continue to drop at higher rates than those of men at the graduate level. NASA recommends that UAH and the MAE Dept. further their Title IX self-evaluation efforts to explore more fully the reasons why this is happening and possible action to address it, such as targeted recruitment efforts to expand the pipeline.

Finally, NASA notes that the UAH Administration, the College of Engineering, and the MAE Department leadership, are working collaboratively to enhance EO-related efforts in a variety of innovative ways. These include efforts to better understand and address the interests and concerns of the student population through targeted website enhancements, programs to increase the service-oriented and "real-world" aspects of engineering education, and a strong institutional leadership commitment to maintaining a welcoming program environment, demonstrated through such efforts as institution-wide education and awareness efforts for the campus community regarding Title IX and related matters.

APPENDIX A. SUMMARY LITERATURE REVIEW

In developing its Title IX onsite review program, NASA conducted a review of literature regarding gender and STEM programs, including Title IX policy and enforcement in the STEM context.⁴² The review assisted NASA to better understand concerns regarding gender and STEM and how Title IX compliance efforts can assist to address such concerns.

Recent Reports and Studies

In general the studies and reports NASA reviewed in the literature describe a broad range of gender-related issues in STEM. For example, the 2004 report of the U.S. General Accountability Office (GAO) (referred to above) described participation rates by gender, observing continued low participation for women in certain STEM programs, such as physics and some engineering disciplines. The GAO report also noted the greater drop-off of women as compared to men at every stage, from high school to doctoral programs. The report highlighted the need for steps to help address this, such as strong outreach efforts to increase the interest of younger students in the sciences.⁴³ In addition, the report recommended that agencies with science missions, such as NASA and the U.S. Department of Energy, conduct Title IX compliance reviews to ensure that grant recipient programs are providing equal opportunity regardless of gender.

NASA also relied primarily on a recent report of the National Academy of Sciences, National Research Council entitled *To Recruit and Advance: Women Students and Faculty in Science and Engineering* (hereafter cited as NRC Report). The NRC Report, issued in November 2006, was based on a comprehensive literature review and site visits to four universities “recognized for successfully advancing and retaining women students, faculty or leaders.”⁴⁴ The report was a valuable tool to better understand women’s experiences in S&E studies and helped to guide NASA’s assessment of the AE Department’s promising practices regarding recruitment and advancement of women students in S&E programs.⁴⁵ For example, the report identified the need to create and institutionalize a sustained commitment to diversity among university leaders and administrators.⁴⁶ This commitment should be demonstrated by dedicating resources to that effort, e.g., Women in Engineering programs, and through ensuring visibility for women students and faculty in communications materials and the Department’s web site, which can help to show

⁴² See generally National Academy of Sciences, National Research Council, *To Recruit and Advance: Women Students and Faculty in Science and Engineering* (2006); National Academy of Sciences, National Academy of Engineering and Institute of Medicine, *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering* (2006); American Institute of Physics Statistical Research Center, *Women Physicists Speak Again*, April 2006 (accessible at: <http://www.aip.org/statistics/trends/reports/iupap05.pdf>); Ellen Sekreta, *Sexual Harassment, Misconduct, and the Atmosphere of the Laboratory: The Legal and Professional Challenges Faced by Women Physical Science Researchers at Educational Institutions*, 13 Duke J. Gender L. & Pol’y 115 (Spring 2006); Catherine Pieronek, *Title IX and Gender Equity in Science, Technology, Engineering and Mathematics Education: No Longer an Overlooked Application of the Law*, 31 J.C. & U.L 295 (2005); Government Accountability Office, *Gender Issues: Women’s Participation in the Sciences Has Increased, but Agencies Need to Do More to Ensure Compliance with Title IX* (July 2004); American Institute of Physics Statistical Research Center, *Women in Physics Speak: The 2001 International Survey of Women in Physics*, 2001 (accessible at: <http://www.aip.org/statistics/trends/reports/iupap.pdf>); Jean M. Curtain, Geneva Blake, and Christine Cassagnau, American Institute of Physics, “The Climate for Women Graduate Students in Physics,” *Journal of Women and Minorities in Science and Engineering*, vol. 3, pp. 95-117 (1997); Mildred S. Dresselhaus, Judy R. Franz, Bunny S. Clark, “Improving the Climate for Women in Physics: A Program of Site Visits Funded by the National Science Foundation” (American Physical Society and the American Association of Physics Teachers: 1995) (APS Program Summary, accessible at <http://www.aps.org/programs/women/sitevisits/summary.cfm>) (APS Program Summary).

⁴³ U.S. Government Accountability Office (GAO) report, *Gender Issues: Women’s Participation in the Sciences Has Increased, but Agencies Need to Do More to Ensure Compliance with Title IX* (July 2004).

⁴⁴ NRC Report, Summary, p.2.

⁴⁵ NRC stated that it “sought to move beyond yet another catalogue of challenges facing the advancement of women academic in S&E to provide a document describing actions actually taken by universities to improve the situation for women.” *Ibid.*, Preface, p. vii.

⁴⁶ *Ibid.*, chap. 1, p.8.

that the program is welcoming and inclusive of women.⁴⁷ Another key strategy is to extend outreach to students at the K-12 and undergraduate levels in the form of summer science and engineering camps, lecture series, career days, and mentoring programs.⁴⁸

The NRC Report indicated that specific retention tools such as curricular modifications and “family friendly” policies may also be of assistance in increasing the numbers of women in S&E programs. For example, courses designed to emphasize the societal benefits or “real-world” applications of engineering have broadened the appeal of engineering studies, helping to create more diverse engineering student populations.⁴⁹ Another important tool for S&E departments is training to raise awareness among faculty and students on gender issues such as sexual harassment prevention.⁵⁰

Finally, the NRC report described issues that “may not be anticipated” influencing the working environment of the laboratory.⁵¹ For example, personal safety issues may be different for women working alone at night in a lab. One faculty member interviewed by NRC commented that whereas general safety issues had been “background noise,” as he put it, the issue of personal safety became a much higher priority when women students joined the lab.

Overall Recommendations

What the research literature tells us is that there are some proactive steps that STEM programs can take, consistent with the purpose and intent of Title IX, to recruit and retain students in these fields, and provide equal opportunities regardless of gender. A small sampling of these steps, representative of the larger themes in the literature on women and STEM, include:

- Engaging in targeted outreach and recruitment;
- Establishing mentoring programs;
- Sustaining strong partnerships with campus professional organizations, such as Women in Engineering;
- Adopting policies that enable faculty, students and employees to combine work, family and other personal responsibilities.
- Conducting on-going self-evaluation efforts.

Overall, NASA has found that *Title IX compliance efforts of educational institutions can help to address such concerns* regarding gender and STEM. For example, effective Title IX coordination can establish collaborative partnerships between the Title IX Coordinator’s office and academic departments, ensuring, among other things, appropriate training for faculty and students to raise awareness on gender issues, e.g., harassment and gender bias. Effective Title IX coordination may also ensure that individuals fully understand the process for addressing discrimination concerns, and how to avail themselves of it.

⁴⁷ Ibid., chap. 2, p.47.

⁴⁸ Ibid.

⁴⁹ Ibid., chap. 3, pp. 53 (citing Busch-Vishniac, I., and J. Jarosz, *Can diversity in the undergraduate engineering population be enhanced through curricular change?* *Journal of Women and Minorities in Science and Engineering* 10:255–281, 258 (2004)), 55, 60 (citing Farrell, E. F., “Engineering a warmer welcome for female students,” *Chronicle of Higher Education*,” February 22, 2002).

⁵⁰ Ibid., chap. 4, p. 78

⁵¹ Ibid., chap. 2, p. 41.

In addition, periodic self-evaluation can greatly assist efforts to identify concerns regarding admission and treatment of students, and help programs to address problem areas in a host of specific areas, from stronger outreach and recruitment efforts, to greater transparency in program policies and practices, to program participants' perceptions of the program environment. NASA has found that the process of a Title IX review itself provides schools with an excellent opportunity to step back and assess their programs in these respects.

We note also that the program evaluated in this review exhibited these characteristics of positive climate, with many promising practices to report (see "Promising Practices" sections, above).