

Radford University  
Academic College

Program Review  
Undergraduate Academic Program  
Submitted: March 2006

Program Review: Undergraduate Academic Program  
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**Part I. Program Information**  
**Section A. Program Identification**

Official Name of the Program: Undergraduate Academic Program (UGAP)

CIP code: 00.0102

Program Options / Concentrations: Concentration, Specialization, Option, Certificate

**Section B. Rationale for Program**

The Radford University Undergraduate Academic Program (UGAP) was started in the Academic College in 1985 and is a central component in the undergraduate academic mission of the University. Since its development, the UGAP has undergone major reform through a series of evaluations leading to the revision of its mission statement and teaching philosophy. Since 1995, the UGAP has revised its mission and vision, redefined its undergraduate objectives to align with those of the Academic College and the University, and has altered its teaching philosophy to better serve the Radford University undergraduate students.

In 1995, faculty from the UGAP attended a week-long conference on the development of the Academic Field. Then, in 1996, the UGAP invited a team of external consultants to campus to review the UGAP. These two events initiated substantial changes in the UGAP.

One year after the site team visit and conference, in 1997, the faculty during their summer retreat took on the task of revising its mission and vision and its undergraduate objectives. These two areas were designed so as to align with the mission of the Academic College and mission of the University. A matrix demonstrating the relationship of course goals to program goals was developed for the entire UGAP. In addition, a matrix outlining the Undergraduate Program Mission to both the Academic College Mission and the University Mission was designed.

In 1998, the UGAP addressed the teaching philosophy in the department. Specifically, faculty members redesigned three core courses to align with national Academic Department teaching standards. These redesigned courses were: Department Introduction and Foundations, Department Standards and Ethics, and Contemporary Research in the Department. Since 1999, these courses have been in place in the UGAP.

After this intensive departmental investigation the faculty decided that the program vision is to be the leading UGAP in the Southeast where the fundamentals of the field and ethical principles are combined into a diverse program where teaching, learning, and research are emphasized. The overarching Mission of the UGAP is: to educate students in modern departmental principles, to prepare students for lifelong professional growth in the program with a strong foundation in ethics and laboratory techniques, to strive for a dramatic range of careers, and to engage in multi-disciplinary research benefiting society globally.

The departmental goals are as follows:

- To produce graduates that are highly trained in the UGAP field with knowledge of:
  - Environmental factors,
  - Laboratory techniques, and
  - Computer applications
- To provide state of the art resources to students and researchers in the UGAP
- To focus of the development of the field through student and faculty lead research investigations of new concepts and initiatives.

The Vision, Mission, and Goals of the UGAP all complement the overall focus of Radford University and its other departments. The UGAP is committed to teaching, learning, and research while developing students into leaders.

### **Section C. Summary of Prior Review**

Undergraduate Academic Program: 1998 Prior Review

The UGAP was first reviewed in 1998 and the recommendation of “maintained” was set forth. The following recommendation came out of this review:

1. Align the mission and vision of the Undergraduate Academic Department with that of both the Academic College and the University.
2. Due to the increased number of student majors in the UGAP and the importance of hands on experience in the area, the program review committee recommends increasing the potential internship experience sites for the students.
3. Review the state of the field nationally and make appropriate changes to the curriculum of the UGAP.

Responses to recommendations

The UGAP has made substantial changes to the curriculum based on the three recommendations given the 1998 Program Review. Each of these are addressed below:

1. In 1997, the UGAP revised its mission and vision statement. This redesign was specifically designed so as to align the program’s mission and vision to that of the University and the Academic College. Matrices demonstrating this alignment were developed during a summer retreat.
2. The UGAP has recently taken on a tremendous task of developing new sites for the students in the program to complete internships. The Program has successfully developed five new internship sites in the New River Valley and Roanoke. These new sites are in addition to the four opportunities for students to work with faculty members in the UGAP on their current research projects. The program is still working with a variety of other sites and faculty members to continually develop this part of the program for our students.
3. In response to the third recommendation, the UGAP attended a week-long conference on the development of the Academic Field and then, in 1996, we invited a team of external consultants to campus to review the UGAP. These two events initiated substantial changes in the UGAP. Most specifically, it sparked the development of a new vision and mission and the redesign of several of the UGAP’s Core courses.

#### Section D. Curriculum Analyses

The UGAP consists of six core courses (three of which have been recently redesigned) and a series of electives. In total, students are required to complete 38 credit hours in the program. This consists of five core courses, one core lab, five elective courses, and one lab elective. Students in the program are required to take the six core courses at specific times within the program and then choose from the appropriate complementary electives.

Since the UGAP's field has rapidly changed over the past five years, one of the main challenges is keeping the technology used in the classroom and the courses as up-to-date as possible. It would be a tremendous disservice to our students if we did not provide them the training and internships they need to become active productive members of the field. As stated previously, the Program has participated in many conferences and meetings to keep the program current. We will continue to work with professionals in the field and have on-site external consultants visit our campus to meet this challenge head-on.

Another challenge of the UGAP is the continuing need of the graduates of the program to continue to enhance their skills. The program is working on developing a series of workshops that would not only benefit our current students but would be available to both alumni and other professionals in the area. This program is currently in the initial stages and the program is hoping to have a few workshops on the books by the Spring of 2007.

One of the main strengths of the UGAP is the service it is providing to the region, Commonwealth, and the nation. Professionals in our field are in short supply and the program has been producing exceptionally qualified graduates who immediately have been making an impact in their first jobs. We are in constant contact with our alumni and their employers to ensure we are meeting this goal.

As was discussed previously, the UGAP has made substantial curricular changes in the past five years. This includes the redesign of a number of the core courses and the development of an internship requirement.

Part II. Student Learning and Student Engagement  
 Section A. Update of SACS Compliance Requirements III.13

Program: Undergraduate Academic Program  
 Department: Academic Department  
 College: Academic College

Expected Learning Outcomes:

A graduate of the UGAP is expected to be able to:

1. Define the five main contributions to the UGAP field since 2000.
2. Explain the environmental factors that contribute to challenges within the UGAP field.
3. Demonstrate appropriate laboratory techniques when working with the following apparatus: microscope, bench top centrifuge, and sterilizer.
4. Solve field specific problems using appropriate computer software.
5. Ability to function as a member of a multidisciplinary team.
6. Assess the importance of US and European influences on the redesign of the UGAP field in the last 50 years.
7. Exhibit oral communication proficiency with the organization and delivery of a speech designed to inform the audience of contemporary aspects of the UGAP field.
8. Compare and contrast the two main theoretical paradigms within the UGAP field [these would be defined for a real program].
9. Design a research investigation using appropriate literature reviews and methodologies accepted by the field.

SACS Compliance Requirements III.13

Program: Undergraduate Academic Program

Assessment Used	Year / Time Period Used	Outcomes Assessed
Exiting Senior Survey	Every year since 1998	All
External Advisory Group	Every 10 years. First time in 1996. Next visit 2006.	All
Employer Surveys	Every 3 years (1999, 2002, next. 2005)	All
Standardized licensure exam	Every semester	1, 2, 6, 8
National Survey of Student Engagement (NSSE)	Every Spring	4, 5, 7, 9
Course evaluations	Every semester	Depends on the course objectives
Student portfolios	Senior year students	All
Student works in selected courses	Every 2 years	Depends on the course objectives
Accreditation feedback	Spring 1995	All
Radford University Program Review	1998	All

SACS Compliance Requirements III.13  
 Program: Undergraduate Academic Program

Evidence of Improvement

Program Improvement	Year Implemented	Assessment Basis
Revision of departmental learning outcomes	1997	1995 Program Review, conference information and external site committee
Transformed departmental mission and vision	1998	1995 Program Review, conference information and external site committee
Addition of courses	1999	1995 Program Review, conference information and external site committee, Licensure Exam, Course Evaluations, Student Portfolios, Student works
Development of potential internship sites	1999	External Advisory Group, Alumni Surveys, Exit Survey, Employer Surveys
Creation of a departmental website	2001	Conference information and external site committee, External Advisory Group
Addition of software and new computers in lab	2002	Exiting Senior Survey, Employer Survey, Licensure Exam, NSSE, Course Evaluations
Development of speech component in core courses	1999	Exiting Senior Survey, Licensure Exam, Employer Surveys, NSSE, Student Portfolios

Section B. Program's Quality Enhancement Plan

A few years prior to the 1998 Radford University Program Review of the UGAP, the department was taking steps to improve the quality of education it provides to undergraduate students at Radford University. Since 1995 the UGAP has revised its mission and vision and redefined its undergraduate objectives. These major changes were initiated by faculty participation in a week-long conference and then responses of a site visit by an external review team.

These two activities also assisted the Undergraduate Program when deciding on which learning objectives to focus on and what strategies would be incorporated into the QEP plan for the University's program review. The department decided to focus its efforts into two main areas; oral communication and laboratory skill development.

QEP: Oral Communication

The UGAP believes that in order for undergraduate students to be successful in the Academic Program field students must be able to present information orally to practitioners in the field. This skill is also important for general success in life beyond Radford University. Therefore, when examining the assessment data from various sources, the department realized that students were not meeting this objective to the extent the department feels is mandatory.

The data from the National Survey of Student Engagement (NSSE) from 2004 supports this assumption. Two items on this national instrument address oral communication

skills. The first item asks students, “In your experiences at your institution during the current school year, about how often have you done each of the following: Made a class presentation.” Only 23% of the juniors and senior respondents stated that they did this activity “very often” or “often.” In a follow up question the NSSE asks students, “To what extent had your experience at this institution contributed to your knowledge, skills, and personal development in the following areas? Speaking clearly and effectively.” Less than half of the responding junior and senior majors stated responded “very much” or “quite a bit” to this item.

In addition, the UGAP examined data from three other sources when deciding to focus on oral communication in the QEP: senior exit survey, employer surveys, and student portfolios. Results from the yearly senior exit survey consistently showed that majors did not feel they were prepared in the area of oral communication and presentation skills. These results were supported by the lack of knowledge of this area demonstrated by students in their student portfolios.

However, most troubling to the department were the employers’ evaluations of UGAP graduates. Employers often rated the student preparation the lowest of all the general knowledge and skill areas presented on the survey.

The UGAP decided to implement a few strategies to increase students’ ability to communicate orally and present information. Specifically, the UGAP decided to implement an oral communication component into the three core courses that were redesigned in 1999. In addition, the department has implemented an oral communication workshop for all juniors and seniors. During their tenure, in the UGAP, each student is required to participate in the day long workshop. This workshop includes both a lecture component and a practice presentation.

Each semester, the presentations made by students in the three core courses are taped and a random selection are reviewed. The number of student participants in all courses and during the workshop are tracked and all information is stored. Students are surveyed in all of the courses and at the end of the workshop. In addition, faculty participation is tracked.

Most specifically, this QEP initiative focused on the program learning outcome of “exhibit oral communication proficiency with the organization and delivery of a speech designed to inform the audience of contemporary aspects of the UGAP field.” However, depending on the presentation topics in the various courses other learning objectives could be assessed. For example, in the Department Standards and Ethics we could assess the objective “explain the environmental factors that contribute to challenges within the UGAP field.”

The tools the program utilized in the assessment of the student learning outcomes are the same one that were initially investigated when determining the student experience in this area. As in the past, junior and senior undergraduate students responded to the NSSE and senior students responded to the senior exit survey. Student portfolios were also



examined and future employer surveys will be analyzed to look for changes in student oral communication.

As was seen by the results of the NSSE survey, student responses to the item “In your experiences at your institution during the current school year, about how often have you done each of the following: Made a class presentation” showed a 35% increase in the categories of “very often” and “often.” In the NSSE follow up question of, “To what extent had your experience at this institution contributed to your knowledge, skills, and personal development in the following areas? Speaking clearly and effectively,” nearly 75% of the students responded “very much” or “quite a bit” to this item.

This shows exceptional change in student oral communication engagement over the past two years. However, the senior exit survey changes were not nearly as dramatic. This could possibly due to the fact that a number of the seniors being surveyed had already completed the core courses prior to the implementation of the oral communication requirement. In addition, there were only slight changes in the senior student portfolio. Again, this could be due the fact that many of the seniors completed the core requirements earlier in their academic program. Finally, we have not yet examined the employer survey information since the QEP was only implemented last year and student employers are not surveyed until graduates are three years out.

Based on the finding that junior majors seem to be benefiting from the changes in the curriculum, the UGAP has determined that it will continue to focus on the implementation strategies that it initiated last year and continue to track evidence of improvements.

#### QEP: Laboratory Skill Development

It is necessary for students in the UGAP to learn essential skills in the laboratory environment in order to be successful in the field. Due to the importance of this learning objective, the UGAP decided to analyze the assessment data it had and determine if students were meeting this goal.

Three main areas of assessment information were looked at in order to determine if UGAP students were meeting the laboratory skills objective. Specifically, the program examined senior exit survey results, employer survey results, and student work in selected lab-based courses. For all three of these assessment areas, the results showed that student knowledge in laboratory techniques was lacking. Specifically, graduating seniors reported low skill levels in many laboratory areas on the senior exit survey, employers report RU alumni needing significant training in many laboratory techniques while on the job, and when examining specific work in lab courses, student skills were lacking.

In order to enhance student engagement and skills in this area, the UGAP has decided to implement a number of different strategies. First of all, the faculty from the program have redesigned 20% of the labs in two of the laboratory courses and have been using those redesigned labs for the past year. In addition, the faculty have started to search for

students to participate in their own laboratory research. Each semester, student work from the labs and student participation in laboratory research is tracked. Specifically, this QEP initiative focused on the SACS III.13 learning objective number three, “Demonstrate appropriate laboratory techniques when working with the following apparatus: microscope, bench top centrifuge, and sterilizer.”

One year after the initial implementation of the QEP initiatives to focus on laboratory skills, the Undergraduate Academic Department focused on assessing the evaluation information gathered over the past year. Surprisingly, the Program found that the improvements in student skills they expected to see from the initiatives implemented did not happen. Initially, the lab redesign did not produce an increase in the student skills and senior graduates did not express an increase in these skills. (Employer surveys were not analyzed since the changes were incorporated would not have been seen by the employers of past students.)

Based on the findings, the Undergraduate Academic Department feels that it needs to make additional changes in the laboratory teaching it does in the program. Therefore, this summer the program will be redesigning the remaining labs in the two courses and will be incorporating a research-based internship requirement for graduation.

Section B.1. Quality Enhancement Plan Table  
Undergraduate Academic Program

QEP Implementation Objectives	Implementation Strategies	Implementation Assessments	Targeted Learning Outcome Objectives	Outcome Assessment	Evidence of Improvement
<p>Increase student experience in oral communication and presentation skills</p> <p>Improve students' ability to present information orally.</p>	<p>Implementation of oral presentation component into the three redesigned courses: Department Introduction and Foundations, Department Standards and Ethics, and Contemporary Research in the Department.</p> <p>UGAP developed oral communication student workshop</p>	<p>Numbers of students in courses and presentations given by majors</p> <p>Participants in the workshop: both faculty and students</p>	<p>Most importantly; SACS III.13 objective number 7: Exhibit oral communication proficiency with the organization and delivery of a speech designed to inform the audience of contemporary aspects of the UGAP field.</p> <p>Other SACS objectives as appropriate to core courses.</p>	<p>National Survey of Student Engagement</p> <p>Senior Exit Surveys</p> <p>Student Portfolios</p> <p>Employer Survey Instruments</p>	<p>NSSE survey student response positive change: Made a class presentation" showed a 35% increase.</p> <p>Speaking clearly and effectively", nearly 75% of the students responded "very much" or "quite a bit."</p> <p>Little change in senior student portfolios and exit surveys.</p> <p>No examination of employer survey data.</p>

QEP Implementation Objectives	Implementation Strategies	Implementation Assessments	Targeted Learning Outcome Objectives	Outcome Assessment	Evidence of Improvement
<p>Improve student skills in numerous laboratory techniques</p>	<p>Redesigned of 20% of labs in two main laboratory courses.</p> <p>Search for students to participate in their own research labs.</p>	<p>Student participation in laboratory experiments and in faculty run research.</p>	<p>This QEP initiative focused on the SACS III.13 learning objective number three: Demonstrate appropriate laboratory techniques when working with the following apparatus: microscope, bench top centrifuge, and sterilizer</p>	<p>Senior exit survey</p> <p>Employer survey</p> <p>Student work in selected lab-based courses.</p>	<p>Initially, the lab redesign did not produce an increase in the student skills and senior graduates did not express an increase in these skills.</p> <p>No examination of employer survey data.</p> <p>This summer the program will be redesigning the remaining labs in the two courses and will be incorporating a research-based internship requirement for graduation.</p>

## Section C. Other Evidence of Program Quality

### Job Placements / Graduate School Acceptance and Graduation

The UGAP is committed to helping students with their future plans beyond Radford University. The faculty assists both students who are seeking employment and those planning on continuing their education in graduate school. Based on information from alumni 1-year out of the UGAP, approximately 65% of the students had obtained full-time employment with more than 50% reporting it was in the UGAP field. Another 25% of the students reported that they were continuing their education in graduate school. Information such as this suggests that the UGAP is going a good job at preparing its students for the workplace and for graduate careers in the field.

### Internship: Internal and External

A large number of students in the UGAP have participated in both internal and external internships. On average, every year 48% of the graduating seniors have completed some sort of internship experience and most report very positive learning experiences. However, recently the department has decided that 48% participation is not adequate and the program is in the process of making a mandatory internship requirement for all graduating seniors. Implementing such a program requires a great deal of faculty support and cooperation. However, the UGAP is certain that this is possible and is working hard to make it happen.

### Employer Surveys

Every three years the UGAP surveys employers of our graduates. Employers are asked to rate how prepared undergraduate alumni are in a number of knowledge and skill areas as well as given some basic demographic information about the alumni and the organization. Although there were some areas graduates from the UGAP could improve on, most of the employer ratings have consistently stated that RU graduates have been well prepared in many areas they considered to be essential in the field. Some of the knowledge and skill areas rated the highest were “ability to express ideas in writing” and “ability to think critically.”

### Graduation Rates

The UGAP is committed to helping its students succeed in the field. By providing students with the support they need from faculty and staff within the department, the UGAP has achieved a 87% graduation rate (graduation rate is defined as the percentage of students having the program declared as their major in their junior year who complete all program requirements and graduate from RU.) These exceptional graduation rates are a testament to the exceptional faculty, support systems, and advisors in the UGAP.

Section D. Relationship of Scholarly and Service Activities to Student Learning  
 The table below provides information on the UGAP over the last five years.

<b>Scholarly and Service Activities: Undergraduate Academic Program</b>	
Number of new courses developed	3
Number of courses revised	5
Number of theses completed (undergraduate)	3
Number of internships / practica supervised	23
Number of directed studies supervised	3
Number of books published	7
Number of journal articles	23
Number of international presentations	1
Number of national presentations	3
Number of regional presentations	12
Number of grants submitted	3
Number of grants funded	1
Number of professional performances	0
Number of professional exhibits	2
Number of national professional offices held	1
Number of regional professional offices held	1
Number of state professional offices held	2
Number of workshops led	5
Number of non-credit courses taught	3
Number of other relevant activities	
Number of club sponsorships (for all five years)	2
Number of faculty participating in "Our Turn"	6
Number of faculty presenting at "Our Turn"	2
Number of faculty assisting in "QUEST"	4
Number of faculty participating in on-campus faculty-led committees	12

As can be seen in the above table, faculty in the UGAP are committed to the program and to Radford University. During the past five years, the UGAP has taken steps to revitalize a number of its courses and well as develop new core courses for major students. Faculty have also taken an active role in the development of students within the program. Increasingly, faculty supervise students in directed studies and in undergraduate theses projects. Even more importantly, is the amount of time faculty spend working with students in internships and practica experiences. This time commitment will be increasing dramatically in future years due to the UGAP changing program requirements to include a mandatory internship experience for all students.

Professionally, faculty have been contributing to the field in several ways. Over the past five years, faculty from the UGAP have published 7 books in the field. In addition, twenty-three journal articles have been published in national field journals. Faculty in the department also participate in a number of national and regional professional organizations as officers (4 total faculty) and have presented their work at these professional organization conferences.

Finally, faculty in the UGAP have taken an active role in the RU campus. Two faculty members have become involved in club sponsorship and have done so every year. In addition, faculty make it a point of participating both in “Our Turn” campus programs and the summer student orientation program “QUEST.” Finally, the faculty participate in on-campus faculty committees each year.

### Part III. Quantitative Productivity Data

The following data were provided to the UGAP by the University. Explanations of information are provided to ease data interpretation.

(Please see files provided by Institutional Research, Planning, and Assessment)

### Part IV. Relationship with Other Programs (See program review document for other categories)

#### Support for General Education and / or Professional Programs

The UGAP significantly contributes to the Radford University General Education Program by offering a series of courses which contribute to one of the eight core areas. Of the 5799 credit hours generated in the lower division courses, the UGAP estimates that between 70 and 75% of the generated hours go to non-major students.

Additionally, the UGAP teaches one graduate course for students in another graduate program. The faculty from the other program asked the UGAP to teach a course for their graduate students that specifically reflects ethical demands in the field. This was started three years ago and every Fall between 8 and 15 graduate students take this course.

#### Student or Employer Demand is High

The UGAP has seen a steady influx of interested students. However, in recent years more employers have been requesting students with this major for work in their organizations. The Radford University program has not seen an increase in incoming majors but expects there to be a steady increase in the near future. We are always monitoring employment trends in the region, Commonwealth, and nationally and are almost certain that the demands for our students will increase dramatically and therefore will drive the enrollments within our department.

#### Program meets a unique need in the region, Commonwealth, or nation without being unnecessarily duplicative

This program meets an upcoming need for the region, the Commonwealth, and the nation. With the field becoming increasingly important in understanding and controlling environmental needs of the United States, the numbers of professionals needed with direct experience in this area will increase dramatically in the next few years. Radford University’s program in the Undergraduate Academic Field was the first in the state of Virginia and is the only program of its type in the region. For more than a decade, the

UGAP has been revising and redesigning its program to meet the changing trends in the field and the faculty feel that the cutting-edge information and hands-on experience students receive in the program will help meet the demands of the region and the Commonwealth in the upcoming years.

#### Part V. Conclusion and Recommendations

The UGAP clearly exceeds the expectations and requirements for viability as defined by SCHEV in their productivity / viability criteria. This includes the number of degrees granted by the program and the number of students served as based on five year averages.

Even though the UGAP exceeds the academic standards set forth by SCHEV it is not the only reason the department feels the program should be maintained. Information and trends show that the field is increasing in popularity among students and graduates are being sought after by organizations. This field is filling a definite need in both the region and the state. The UGAP is working almost to capacity currently to meet the requirements of its majors and in fulfilling General Education requirements. The program is a bit concerned that there will be ever increasing demands in this field that will force the program to cut some general education courses in order to meet major student demand. By the next program review we expect this to be the case and would be seeking resources as appropriate.