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### ASPIRES at Georgia Southern University

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# ASPIRES at Georgia Southern University

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## ASPIRES Overview

Advisement and Scholarship Promoting Inquiry-based Research Experiences in STEM (ASPIRES) at Georgia Southern University is a comprehensive, strategic project that will increase the number of students graduating with bachelor's degrees in STEM fields. Five action items will address two interrelated goals:

### Goal 1: Increase retention of STEM students

- Implement Intrusive Advising to promote faculty/student interaction and to guide students.
- Engage students through STEM Residential Interest Groups.
- Promote and implement undergraduate research opportunities for freshmen.

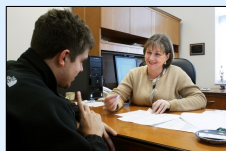
### Goal 2: Improve academic success in science and math courses

- Initiate Supplemental Instruction to promote student academic achievement.
- Incorporate Guided Inquiry to engage students through active learning, critical thinking and problem solving.

The 5 year STEP grant began on January 1, 2007.

## Advisement Center

Utilizing the intrusive advising model, the mission of the COST Advisement Center is to help first- and second-year students achieve academic and personal excellence by doing the following:



Coordinator Lisa Vance advises first-year student

- Provide academic advisement on major requirements, course selection, and registration;
- Provide a faculty mentor that may address concerns and provide support;
- Provide meaningful interaction and mentoring by faculty and other students;
- Offer workshops on study skills, time management, introduction to resources on campus, and other important topics that impact students;
- Promote usage of all resources that Georgia Southern University offers;
- Provide information on scholarships offered by COST departments;
- Monitor and counsel students' academic progression, providing varying forms of intervention.

## Advisement Center (cont'd)

The COST Advisement Center services are offered from fourteen faculty advisors, one coordinator, four staff advisors, one career services specialist and one secretary.

Each student is required to meet with an advisor twice per semester. Two faculty advisors utilized group follow-up meeting to develop peer relationships among students of same major/emphasis. Anecdotal feedback suggests group meetings were successful.

### Student Participation Advising Statistics – Spring 2008 - Fall 2010

Description	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011	Fall 2012
Total # of Students	1160	1051	1522	1374	1671	1729	2283
Total Students Seen	1054	973	1424	1217	1495	1599	1912
% Advised	91%	93%	94%	89%	90%	93%	84%
Total Pre-Registration Appts	1217	1063	1557	1420	1631	1357	1888
Total Follow Up Appts	341	346	683	567	619	517	621
Total Mid-term Appts	60	63	NA	6	259	209	316
Total Number of Appts	1618	1472	2240	1993	2509	2083	2825

### 2011 Highlights

- New freshmen were introduced to active learning through a new and innovative presentation, utilizing varying forms of technology and current pedagogy during summer orientation for new students.
- Advisement Center staff conducted numerous workshops each in spring and fall semesters to provide information about career opportunities, ASPIRES opportunities, study tips, pre-professional requirements, time management, and other important topics.
- Developed **STARS** (Steps Toward Academic Readiness and Success) on-line learning modules designed for at-risk and probation students in COST. Program has extended across campus.
- Training was continued for faculty and professional advisors at COST Advisement Center meetings and via Georgia Southern Advisor Training (GSAT).
- NACADA Awards:
  - Lisa Vance, NACADA Outstanding Advisor Academic Advising Administrator
  - Michelle Cawthorn, NACADA Outstanding Advisor Faculty role
  - Amy Smith, NACADA Outstanding New Advisor Primary role, Certificate of Merit

## Undergraduate Research

ASPIRES provides paid research opportunities to STEM majors following their first- or second- year at Georgia Southern University to engage them early in the practice of science. The students work with faculty and present their findings at a symposium. Students are awarded \$2,000 stipends, \$1,000 is paid to each faculty member and \$500 is provided for supplies/expenses.

Research Year	Total Students	Retention through Fall 2011
2008	8	63%
2009	23	87%
2010	21	100%
2011	9	100%



Dr. Nayduch, Assistant Professor of Biology, conducts research with undergraduate student

- 2 students are currently graduate students at Georgia Southern
- 30 external presentations (oral and poster) have been made using the research conducted with ASPIRES students
- 8 articles have been published using the research



## Residential Interest Groups (RIG)

RIGs were offered for four years. Students majoring in STEM disciplines live in a residence hall with other students pursuing the same major. Students take three linked courses. Multiple resources are available within the residence hall for these students (tutors, workshops, etc.)

### Students Living in RIGs

RIG	2007-2008	2008-2009	2009-2010	2010-2011
Chemistry ELEMentS	8	9	0	1
Math PLUS	27	24	17	21
Physics SPACE	12	10	14	16
Biology BUGS	7	1	NA	NA
Pre-Medicine DOCS2B	NA	26	22	24
	NA	NA	16	20

## Supplemental Instruction (SI) and Guided Inquiry (GI)

Implementation of SI occurred in introductory math, biology, chemistry and physics courses. Different strategies were used in each department, different training was provided for Peer Leaders, and Peer Leaders incorporated different strategies in SI sessions within and across departments. In three departments (Biology, Chemistry and Mathematics) the SI sessions were held after regular class hours, and in Physics, SI strategies were incorporated into regular instruction. In Spring 2011, Math revamped the implementation of SI and did not offer any sections with SI during this term.

The only COST department that categorized treatment sections as GI in the last two academic years was Physics. The Biology, Chemistry and Mathematics departments had previously developed GI strategies, and they had integrated some into a few courses.

	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011
SI Sections	15	25	47	54	48	38	32
GI Sections	7	10	13	17	16	13	14
Students Enrolled in SI/GI Sections*	321	1183	1597	2438	1908	2134	1937

Note: some students may be counted twice as they may have enrolled in multiple SI/GI sections across departments.

## Conclusion

All ASPIRES strategies together helped to increase the COST retention rate for multiple project years, and decrease the DFW rate for multiple project semesters/years.

An extremely positive project outcome is that sustainability of aspects of the ASPIRES project is assured. Three strategies developed and implemented by ASPIRES project faculty have already become institutionalized at GSU, and departments in colleges in addition to COST have adopted and implemented them: COST Advisement Center; Research Interest Groups; and Supplemental Instruction.

## Acknowledgments

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