Biology Boot Camp, Freshmen Interest Groups (FIGs), and Residential Colleges: Three Approaches Designed to Help First-Year Science Students Succeed

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Presented at the 23rd International Conference on the First-Year Experience
Maui, Hawaii June 7-10, 2010
Agenda

• Biology Intensive Orientation for Students (BIOS)
  history, rationale, program structure, assessment results and conclusions

• Freshmen Interest Group (FIG)
  model, outcomes, implementation, and assessment

• Science Residential College
  model, outcomes, implementation

• Future Directions

• Questions
Session Outcomes

• Demonstrate the partnership between an academic unit and residential life department to create initiatives that enhance first-year science students’ experiences

• Outline the initiative models and strategies used for successful implementation

• Share assessment results from BIOS and the living-learning programs

• Provide recommendations for continued development and focus in these initiatives
This is LSU…

View LSU’s 150th anniversary celebration highlights: http://www.lsu150.com/
First-Year Student Profile

- 4,789 enrolled for Fall 2009
- Mean ACT composite of 25.5
- Approximately 2/3 live on campus
Helping First-Year Students Succeed

• More than 12 years of data conducted in Biological Sciences shape what we know about incoming first-year students…
BIOS History & Objectives

• Biology Intensive Orientation for Students (BIOS)
  – Designed to positively impact first-year students’ success in Biology
  – Provide students a realistic look at the pace of college life
  – Improve students’ study skills
When Students Struggle...

- They perform poorly on their first exam (or two)
- They blame others for their poor performance
- They drop the course
- They earn a low grade
- They repeat the course
BIOS Growth Over the Years

Year

2005 2006 2007 2008 2009

BIOS Enrollment

0 50 100 150 200 250 300 350

2005 2006 2007 2008 2009
BIOS Schedule Overview

- Content-based “boot camp”
- Content lectures
- Three short exams with feedback
- Visiting guest speakers
- Study sessions
- Undergraduate / graduate mentors
- Learning community concept
BIOS Assessment

• Comparison of BIOS and Control Group
  – Course Success and “On-track Percentage”
  – Retention in the Major
  – Junior Year GPA Comparison
Success in Core Courses

Percentage on Track

Semester of Coursework

1201  1202  2nd fall  2nd spring
Retention to the Major

2005

2006
BIOS Conclusions

• BIOS participants performed significantly better than the control group
• The percentage of BIOS students on-track to graduate in four years was almost double that of the control group
• Similarly, their retention rate in the major was also greater than that of the control group
BIOS Conclusions

• BIOS participants indicated they:
  – learned valuable study habits
  – felt more comfortable about starting college than they had before BIOS
  – have formed and sustained study groups through their first year
Impact on Students

“I realize that BIOS put me ahead of many of the students who did not attend the program; this allowed me to help them, which in turn helped me grasp the material even further.”

--BIOS Participant
BIOS Keys to Success

• Content focuses on a specific course
• Familiar assessment instruments
• Small group cohort
• The program is infused with study skills training
Future Directions for BIOS

• Other departments within the College of Science have begun summer programs
• “Project 180”
• Connection with living-learning programs
Living-Learning Communities

• Provide a seamless living-learning environment for students at LSU
  – Freshmen Interest Groups (FIGs)
  – Residential Colleges
The FIG Model

• Small, cohort style
• Linked courses, including a first-year seminar course
• Faculty and staff involvement
• Study groups and exam reviews
• Co-curricular activities designed around learning outcomes
• Live in residence hall together
FIG Participation Requirements

- Composite ACT score of 23 or higher
- Interest in health fields
- Enroll in BIOL 1201, BIOL 1202, and LSU 1001
- BIOS was required for 2008-2009
2009-2010 FIG Students
FIG Outcomes

• Academic support
• Involvement in the community
• Career exploration
• Mentoring
• Current issues in the field
LSU 1001

- One-credit first-year seminar course
- Taught only in the Fall semester
- Core curriculum – study skills, research university, faculty culture, transition to college
- Unique curriculum – success in sciences, writing skills development, mentoring
Academic Success

• Final grade grades patterns indicate:
  – 2008-2009 FIG
    • 85.5% achieved a “C” or better in Biology 1201
    • 95.4% in Biology 1208 (lab)
    • 78.4% in Chemistry 1201
    • 90.0% in Biology 1202 (spring course)
  – 2009-2010 FIG
    • 76.3% achieved a “C” or better in Biology 1201
    • 93.1% in Biology 1208 (lab)
    • 78.3% in Chemistry 1201
    • 86.0% in Biology 1202
Academic Success

• Semester GPAs:
  – 2008-2009
    • 2.977 (fall semester)
    • 3.005 (spring semester)
  – 2009-2010
    • 2.841 (fall semester)
    • 2.924 (spring semester)
The Residential College Model

- Larger community
- Cohort courses
- Faculty and staff involvement
- Study groups and exam reviews
- Co-curricular activities designed around learning outcomes
- Live in residence hall together
Science Residential College
Participation Requirements

• Composite ACT score of 23 or higher
• Math ACT score of 25 or higher
• Major declared in College of Science
  – Biology, Chemistry, Physics, Geology, Computer Science, Mathematics
• Enroll in two cohort courses
• Summer camps encouraged
Science Residential College Students by Major Class of 2009-2010

- Biology*
- Chemistry
- Physics
- Computer Science
- Geology
- Mathematics
- Other (e.g., PreMed, PreDent)
Residential College Outcomes

• Effectively transition
• Problem-solving and decision-making
• Career development
• Communication effectiveness
• Critical analysis of issues
Academic Success

• Cohort classes
• Some Resident Assistants tutor in course subjects
• Advisor in College of Science dedicated to students in the Science Residential College
Co-Curricular Activities
Co-Curricular Activities

• Faculty involvement
• Student organization involvement
• Science career guidance
• Science activities
• Undergraduate research opportunities
Living-Learning Program Conclusions

• 2009-2010 was the first year for the Science Residential College
• Assessment plan
  – Overall GPA, Grades in Science classes, Retention in College of Science and at LSU
  – Compare with academically matched students not in residential college and/or BIOS
Impact on Students

• Comments from our living-learning community students…
  – “The (residential) college is a great aid because of the resources available for us and I am thankful.”
  – “People with same classes helped me gain understanding.”
  – “It was a great social and academic opportunity.”
Future Directions

• BIOS program continues to grow
• Continued assessment and development in the living-learning programs
• Ongoing commitment to first-year student success

LSU Department of Residential Life website: [www.lsu.edu/housing](http://www.lsu.edu/housing)

LSU College of Science website: [http://science.lsu.edu/](http://science.lsu.edu/)

BIOS Program website: [http://www.biology.lsu.edu/introbio/bios/home.htm](http://www.biology.lsu.edu/introbio/bios/home.htm)

LSU Office of Budget & Planning website: [http://www.bgtplan.lsu.edu/](http://www.bgtplan.lsu.edu/)
Acknowledgments

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Freshmen Interest Groups

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Mahalo! & Aloha!