

## *Chemistry Department Structure*

18 Faculty Members

170 Chemistry Majors

ACS, non-ACS, Biochem option

2007 Graduating Class = 49

Master's Program: 11 students



## *CASPiE Program Structure*

- PI                                      Bob Morris
- Project Manager                      Jason Dunham
- Modules
  - Spring 2006 (Antioxidant and BioSensor)
  - Spring 2007 (Antioxidant and SPOS)
- Other faculty:
  - Paul Coan (Gen. Chem.)
  - Rob Sammelson (Organic)
  - Steve Chung (Organic)



## *General Chemistry Schedule*

Weeks (in order)

- Math Review Lab
- NO LAB - MLK
- Check-in Qual. Analysis
- Problem-Solving for Exam 1
- **CASPIE**
- **CASPIE**
- **CASPIE**
- **CASPIE**
- NO LAB - spring break
- PSS for Exam 2
- Kinetics Experiment
- **CASPIE**
- **CASPIE**
- PSS for Exam 3
- Redox Equations and **CASPIE (if needed)**
- **CASPIE** Presentations and ACS Standard Exam



## *Organic Chemistry Schedule*

Course is scheduled for two 3-hr labs per week

Students do 5 regular labs and then start their “unknowns”

CASPiE module runs 5 weeks concurrently with “unknowns”

Student presentations at end



## *Peer Leaders*



General Chemistry:

4 Peer Leaders

-each w/2 groups of 3 students

Organic Chemistry:

4 Peer Leaders

-each w/2 groups of 3 or 4 students

Had a good mix of Peer Leaders

50% Males 50% Females

## *Peer Leader Selection*

Students were recruited in early/mid fall semester.

Recruitment aimed at:

- past CASPiE participants
- chemistry majors
- upper level science students

Student schedules were a hurdle!



## *Peer Leader Compensation*

Offered:

- credit Special Topics course
- stipend
- combination
- hourly pay for training

2 hours of credit + \$0  
(3 peer leaders)

1 hour of credit + \$300

0 hours of credit + \$600  
(5 peer leaders)



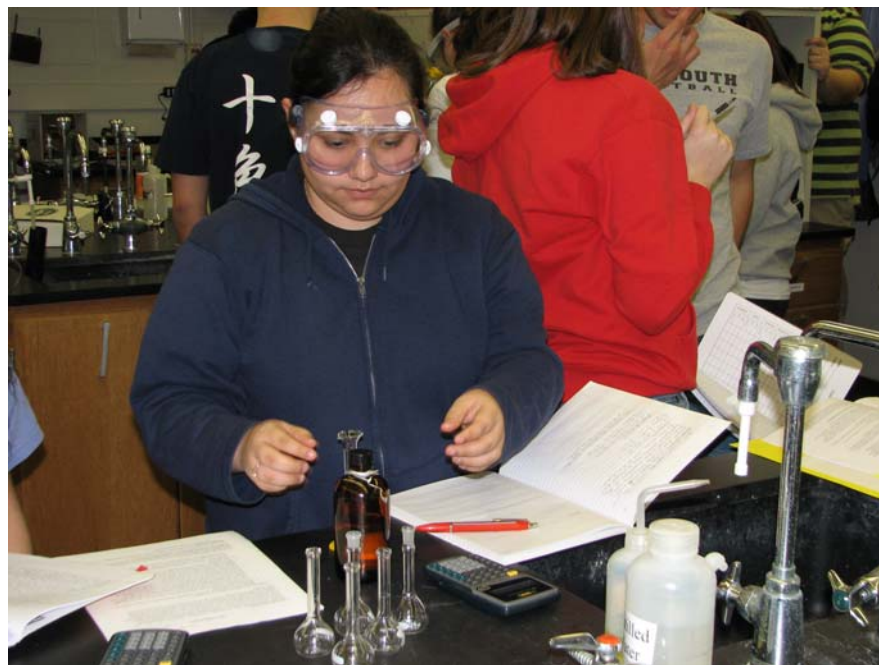
## *Peer Leader Training*

### **Fall Semester**

Work through modules  
with project manager

Attend peer leader  
training conference, Purdue

BSU Learning Center Modules (designed for Supplemental  
Instructors, but helpful for Peer Leaders)



# *Peer Leader Training*

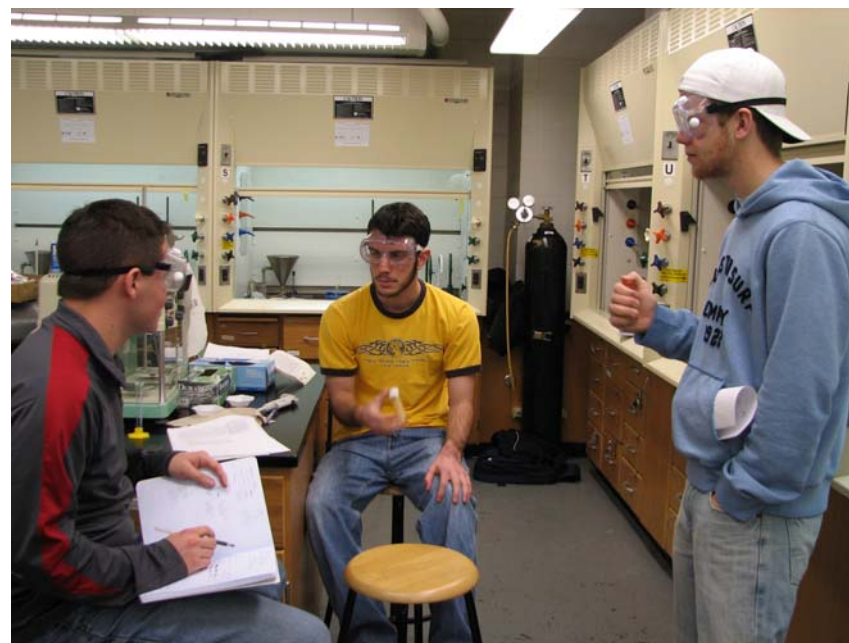
## Spring Semester

Weekly meeting with Project Manager:

- discuss weekly procedures
- discuss feedback from students

CASPiE workshop material

Interactions with faculty members



## *Peer Leader Responsibilities*

Assigned two lab groups (6-7 students)

Attend CASPiE Laboratory

Meet with their student groups  
once a week:

- outside of scheduled lab
- discuss modules and workshops
- student attendance is ~100%, although not required



## *Student Selection/Recruitment*

### **General Chemistry**

Students from all three lecture sections were recruited during fall semester by:

- a. email
- b. lecture visits/announcements
- c. table at Chemistry Open House

### **Organic Chemistry**

All students in the upper level section are participating



## *Student Participants*

### **General Chemistry:**

24 out of 228 students in Gen. Chem II

Majors: Biology, Chemistry, Pre-professional, other

### **Organic Chemistry:**

28 students out of 95 Organic II students



## *Number of Chemistry Majors Among Participants*

### **General Chemistry:**

a. Spring 2006:

-4 out of 23

-*now* 7 out of 23

b. Spring 2007:

-3 out of 24

### **Organic Chemistry:**

-17 out of 28

-6 of 28 students were in CASPiE Gen. Chem. Section.



## *Summer Research Program*

The Chemistry Summer Research Program:

- Thirteen CASPiE students have applied
- mostly from the Organic Section

Last year we had one student from the General Chemistry CASPiE section.

Students can be in program more than one summer

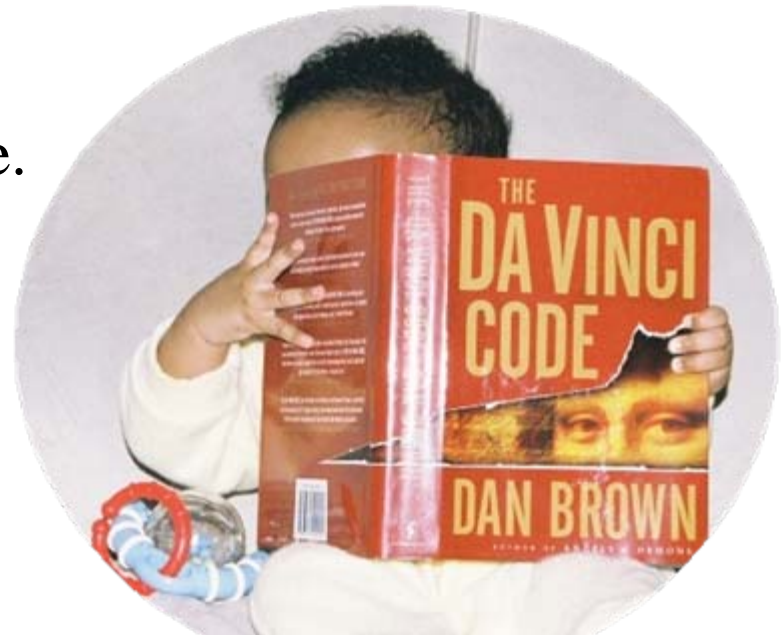


## *Student/Program Assessment - Figuring it out!*

Students were assessed using the grading rubrics designed by Prof. Bill Robinson, Purdue.

Students were made aware of the notebook rubrics ahead of time.

The Program was assessed with **Beginning of Term** and **End of Term** surveys.



## *Selected 2006 Assessment Results*

P = participants (**n=19**), NP = non-participants (**n=89**)

Participants felt much less likely to succeed in lab by merely following directions.

P: 3.26 NP: 4.59

Participants found CASPiE laboratory more relevant to the real world.

P: 5.16 NP: 4.32

Participants found laboratory less helpful in understanding course material.

P: 3.95 NP: 4.34

6 = strongly agree

1 = strongly disagree



## .... 2006 Assessment Results

Participants were more likely to be interested in science career due to laboratory experience.

P: 4.40 NP: 4.07

Participants were more motivated by answers to research questions to do well in laboratory.

P: 4.58 NP: 4.01

Participants more often found laboratory more interesting due to use of instrumentation.

P: 5.21 NP: 4.76



## *Summary*

Nice research opportunity for freshmen/sophomores.

Peer Leaders are the crux of success.

Some students have trouble adjusting away from “cookbook”.

Instrumentation is a vital component.

Constant learning curve with students and chemistry.



## *Acknowledgements*

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