Presentation
- Basic science department in the Ag College
- New department
- Undergraduate teachings 60%
- Graduate
- Service courses from both UG & Grad
- Funded research\applied
- Biology “flows” into half the campus
- 350 students in anatomy and physiology
- Goals
  - Pursue sustainable quality in teaching, research and commercialization
  - Tailor UG program to regional needs
  - Increase research impact
  - Grow graduate program
  - Procure funding streams
- Student performance
  - Little control over quality of incoming students
  - Need
    - Scholarships
    - Honors courses
    - Opportunities like internships
    - Professorships
    - Intentional recruiting
- Research productivity
  - More publishing and higher impact journals
  - Citations per year also up
  - Graduated 4 Ph.D. students last year
  - Need to decrease time fragmentation
    - Means balancing being accessible to undergrads
- Entrepreneurship and translational work
  - Incorporate into curriculum
- Limiting factors
  - Shortage of scholarships
  - Access to higher performance student
  - Research facilities
    - Space
    - Support staff
• Core facilities
  o Percentage Indirect Return
    ▪ Currently get 20%
    ▪ Not enough
  o Increasing amounts of administrative and logistical complexity

• University Planning Process?
• Will number of students increase?
  o Loss of faculty and increased teaching load impacts time for research
  o Loss of Ag Experiment Station impacts faculty too
    ▪ Have to go out and get external contract taking time away from other work
  o Funding for research has changed so much
    ▪ Horizon for research is bleak especially outside of the University
  o University and Department plans need to co-evolve

• Have taken on the Biotechnology Program
  o The teaching lab equipment is coming near the end
  o Fees don’t pay the costs
  o Where do we find the dollars for teaching?
    o Can get external research dollars but don’t have those sources for teaching

• Facilities
  o Have gotten facilities
  o Aren’t able to maintain them
  o Example: no service contracts
    ▪ Critical for research
    ▪ Should be centrally managed and funded

• Need to be in touch with stakeholders
  o There are other models but will require a change in paradigm
  o Constituents have a vested interest in our success
  o We need to reach out

Teaching lab upgrades
• Spaces are good
• Equipment is failing e.g. hoods
• He sets up 9 hour lectures himself and for more students now (20 now)
• Have to use research equipment for teaching
• For intro labs (101)
  o Are up to 30 students
• Pricing is an issue
  o Lab fees?
  o Have more fees than average university
  o Other schools
- 85% tuition
- 15% fees
  - We’ve been increasing fees
- Need to propose solutions to these problems
  - Have to message of the structure so that there is understanding when we propose changes

**Undergraduate Research**
- Proud of this
- Have had a funding constraint
- Safety
  - Pierre is proposing undergrad students can’t work alone
- Also undergrads and intellectual property
  - If hired, that’s one thing
  - What if taking credit to do research?
  - Would like to give scholarships for undergrad research
- Students need internships and/or undergrad research so don’t want to constrain it
- It’s the least efficient teaching they do

**How are the Ph.D. and Masters programs doing?**
- Have broader courses that can meet every year
- Ph.D. program is increasing and they are placing their grads
- Decided not to add new Ph.D. “names” because won’t grow the program
- Students are being part of research publications
- Seeing more collaboration with other departments on Ph.D.’s
- Will the staffing/support from the Graduate School decrease?
  - No
- TA’s versus Research Assistants

**Have asked Biology for more sections**
- It’s a balancing act
- Make sure standards documents reflect new plans
- Also create milestones to check how you’re doing
- If state support declines, rely more heavily on tuition, indirect, donations
- Choosing the right measures on the dashboard and them report back on them
- Some trend lines with shift
  - Have no control, i.e. federal funding
  - Still need to have goals even in a declining environment
  - Managing people’s expectations
    - E.g. stimulus money and ARRA money have been eliminated
  - Will continue to have more students who won’t have the means to pay increased contributions to their education

- e.g. stimulus money and ARRA money have been eliminated
Plans and aspirations for tech transfer
- Especially with Denny leaving
- Doing some hiring right now for a new director

Any thoughts on further restructuring?
- Nothing in the immediate horizon
- Are looking at cross disciplinary centers/collaborations
  - “Virtual Schools”
- Would like form to follow function
  - i.e. Biology is already doing this with Secondary Education/STEM
- 35 Biology majors with Secondary Education emphasis
  - Working with Department of Teaching, Learning, Leadership
  - Sometimes overwhelmed
  - Would like a defined requirement as to the amount of contributions for NCATE, etc.
  - Have had short amount of time to reply
  - Want to know the expectations
Strategic Vision
Biology and Microbiology Department

Who we are

The Department addresses the basic science of biology for the needs of a diverse applied environment.
A new department

- 6 Faculty transferred to NRM
- 3 cross-appointed faculty transferred to NRM
- 1 Faculty retired,
- 1 Faculty transferred to PS

Our identity lies in:

- Undergraduate courses:
  - Majors
  - Service courses
- Graduate program
  - Majors
  - Service courses
- Funded foundational research serving the applied world
- Promoting the biotechnology industry
How we link into SDSU

Biology & Microbiology

- Pre-Pro
- Pre-Pharm
- Pre-Nurse
- Pre-Vet
- Chem-Bio
- Anim Sci
- Plant Sci
- NRM
- EHS
- Ag Eng
- Dairy
- Vet Biomed
- Biotech Industry
- Biology
- Biotechnology
- Microbiology
Strategic goals

The department will pursue sustainable quality in teaching, research and commercialization efforts.

- We seek to raise the tip of the pyramid through:
  - Courses for both all students & higher performing students
  - Graduate students
  - Faculty performance

Four focus areas

- Tailor undergraduate program to the state and regional needs
- Increase the impact of our research
- Grow the graduate program
- Procure funding streams to facilitate growth

We await the University strategic plan to inform how we direct these focus areas.
Examples
WHY?

- Higher ACT
- Lift factor in class
- Better placement
- Future alumni
- Mentors for others
What we do know:
Stretch experiences improve student career prospects

![Bar chart showing SDSU Acceptance Rates (2002-2009)]

Note: Average grades and MCAT scores for all US applicants were 3.5 and 27 or higher.

What we do know / 2:
School performance is an indicator

![Scatter plot showing ACT vs. MCAT scores]
How?
- Scholarships
- Honors courses
- Opportunities
- Professorships
- Recruiting

Student success
- Freshman seminar
- Peer mentors
- Active learning
- Early alert
- Informed delivery – we need SOTL in-house
RESEARCH PRODUCTIVITY

Citations

0      50    100   150   200   250   300   350   400   450   500   550   600

Graduate student numbers

2002  2003  2004  2005  2006  2007  2008  2009  2010  2011
0      5     10    15    20    25    30    35    40    45

Number of students enrolled:
- MS
- PhD
Research Productivity

- Grant funding
- Grad scholarships
- Higher impact J
- Decrease time fragmentation

Entrepreneurship & Translational Work
ENTREPRENEURSHIP & TRANSLATIONAL WORK

- Incorporate in curriculum
- Facilitate – e.g. CBRD has expertise

Limiting factors

- Shortage of scholarships:
  - Undergraduate
  - Graduate
- Access to higher performing students
- Research facilities
  - Space
  - Support staff
  - Core facilities
- % Indirect returned
- Increasing administrative & logistical complexity placed on faculty