

## Memo

To: Biology Curriculum ad hoc committee

From: Sean Palacek

Re: Summary of Fall 2003 Zoo 570 trial

Ten CBE Seniors enrolled in and completed Zoology 570 in Fall of 2003. Every student in this group had previously taken Biochemistry 501 as a prerequisite, or was concurrently enrolled in Biochemistry 501. After the course the students completed a survey about their experiences and opinions regarding Zoology 570.

Question 1: Is Biochemistry 501 an adequate prerequisite for Zoology 570?

Yes: 100%

No: 0%

Question 2: Was your grade in Zool 570 above, below, or same as your overall GPA?

Above: 20%

Same: 40%

Below: 40%

Question 3: Did you find the material in Zool 570 more or less interesting than in other required or elective science courses you have taken (e.g. chemistry, physics, other biology)?

More: 80%

Equal: 10%

Less: 10%

Question 4: Was Zool 570 more or less intellectually challenging than other required or elective science courses you have taken?

More: 20%

Equal: 20%

Less: 60%

Question 5: Did Zool 570 require more or less time than other required or elective science courses?

More: 0%

Equal: 20%

Less: 80%

Question 6: Do you see application of the material covered in Zool 570 to the field of chemical engineering?

Yes: 80%

No: 10%

Maybe: 10% (not in typical manufacturing career, but for ChE's looking for other career options, yes)

Question 7: While taking Zool 570, did you notice how core chemical engineering concepts (e.g. thermodynamics, transport, kinetics, process control, design) could be applied to understanding cell biology?

Yes 90%

No 10%

Note: 5 of 9 students who marked yes also indicated that the way the course was presented didn't stress the importance of these concepts in cell biology

Question 8: When would Zool 570 best fit into the undergraduate curriculum, considering prerequisites that would aid understanding Zool 570 and also the impact material covered in Zool 570 might have on later courses?

2<sup>nd</sup> year: 10%

3<sup>rd</sup> year: 50%

4<sup>th</sup> year: 20%

N/A: 10%

Question 9: Would you recommend this course as a required or an elective course for chemical engineering majors?

Should be required: 30%

Should be elective: 60%

Should be neither: 10%

Question 10: What current required or elective science course would you replace in the curriculum with Zool 570 if you were to make Zool 570 a required course?

Chem 562: 30%

Advanced Chem Elective: 20%

Adv. Chem Lab Elective 20%

Analytical Chemistry 10%

Engineering Elective 10%

None 20%

Question 11: Please rate the instructors compared to other science courses:

Top 25% 40%

25-50% 40%

50-75% 10%

75-100% 10%

Other comments:

“Course got into details I don't ever see myself needing to know but great class if you're going into cell biology.”

“Far more interesting than chemistry and physics but not more interesting than Biochem 501.”

“I was able to draw connections between cell function and transport and kinetics.”

“Assigned homework would benefit understanding of course material, and probably retention too.”

“I wish there were more assignments outside of the exams.”

“I really liked the lectures but not the testing style. Too much memorization!”

“Would have been helpful to have had Biochem 501 before Zool 570.” (student was taking classes concurrently)

“First test was memorization, others really tested understanding of material.”

“Topics such as chemical transport across membranes and protein polymerization could easily be incorporated into chemical engineering classes.”

“Even though my grade was not the greatest I did learn a lot more than I expected.”

“An introduction to the material in Zool 570 is vital to any medical technology career.”

“I would prefer to have one class that combines topics in biochemistry and cell biology than take both.”

“I really don’t like biology but I recommend this class for students who do. This should be an elective so students who like chemistry should be allowed to take more chemistry courses.”

“It was different than most classes I’ve taken since it required a lot more reading and understanding than solving problems.”

“It gave a good understanding of what happens in our cells and shows how complex living beings are.”

“The first exam was quite easy since material overlapped with Biochem 501, but it got more challenging for the other 3 exams.”

“Since the first part of the class was so easy, I stopped attending and collecting notes. Unfortunately I got a D in the course but it’s my fault”

“Consider a 'non-bio' chemical engineer with little education in biology. They will be taking Biochem 501 and Zoo 570, which both require memorization of detail but not necessarily understanding of biological systems. If the goal is to give all B.S. ChEs some exposure to biology, then it is fine. If the goal is to give them all elementary understanding of key biological systems and principles, I don't think these two courses will suffice. I think a course with content similar to Zoo 151 would be better; unfortunately, 151 is so poorly conducted, I would not recommend it.”