Boomer's Microbiology Research Policy Statement

Given a variety of issues (e.g. new safety standards, workload, the importance of presentations, observations from doing research with WOU students, and the lack of time/funding), I am defining the following policies for students interested in doing microbiology research. I will only accept 1-2 students per year, with preference given to students interested in microbiology-related careers.

(1) ALL available projects (see #6 below) involve unknowns, meaning BSL-2 management and responsibility. For this reason, ALL students must have taken 331. As students will learn: making and managing media and cultures - including cleaning up - requires a lot of time and attention.

(2) Although some preference will be given to academically strong students, the most consideration will be given for observed performance in BI 331 lab with an emphasis on respecting safety guidelines, maintaining an organized notebook, being careful with reagents, and clearly being interested in lab-work (i.e. if you are the first one out the door, if you are always cutting corners trying to get out early, if you are always asking for replacement materials or drop things – don't ask to do research in microbiology).

(3) Because of liability issues, you MUST sign up for and pay for at least 1 graded BI 406 credit. This may be stretched into 2 terms using the "regular progress" option. Your grade will be based on your notebook (30%), goal completion (20%), conduct - e.g. lab safety, lab management, professionalism (20%), and mandatory Academic Excellent Showcase presentation (30%).

(4) Because presenting research is an integral part of the scientific process and because presentations benefit you and me, all projects must culminate in a presentation (poster or talk) for the Academic Excellence Showcase. Based on the grade breakdown above, if you fail to complete an Academic Excellence Showcase presentation, the highest grade you can earn is a C.

(5) Given my fall- and spring-heavy teaching schedule, and the presentation requirement, students must be able to complete the majority of their research in winter AND develop presentation/present at Academic Excellence Showcase in the spring. Here is a basic timeline (more details in #6-7):

Fall: approach me and lay out a work plan - due December 6! See more below.
Winter: all research data gathering and basic data analysis. See more below.
Spring: develop and present your work at Academic Excellence Showcase. See more below.

(6) Next Year, I am willing/able to lead only the following kinds of projects – all of which are extensions of 331 exercises but will involve you making/managing your own media, defining 3-4 "natural" environmental sampling sites, and comparing target organisms or processes:

a. Soil/Nitrogen Cycling Azotobacter - Enumeration and Diversity. The primary media will be Azotobacter/N-free, and additional ID test media.
b. Soil Streptomyces/Bacillus – Enumeration and Antibiotic Assessment. The primary media will be starch and nutrient – and you will have to use medical controls for antibiotic testing.
c. River Enterics/Coliforms/Pseudomonas. The primary media will be MacConkey and additional ID test media; this project could also involve antibiotic resistance testing.
d. Building/Facilities Staph Diversity: Antibiotic Resistance. The primary media will be Mannitol-Salt and antibiotic resistance testing.

Please note: these are SMALL and SIMPLE projects. As you think about things, remember: less is more and the point is for YOU to learn to independently do microbiology and set up/analyze a good experiment that will yield data for a BASIC presentation at Academic Excellence Showcase.

(7) What To Do Next:

a. Thoughtfully review your schedule and consider whether you have the time to commit to the schedule above and below.

b. Approach me early in the fall to see whether I will take you on, and to lay out basic ideas. Write up a 2-page goal/planning document, including a good project outline – DUE DECEMBER 6 – so we can set up your BI 409 credit. Your planning document will need to lay out work times – and they cannot interfere with winter NS201 teaching times (heaviest T/R morning and all day W).

c. Your winter commitment/expectations should be in the 30-40 hours realm. While 70% of this will be set-up and analysis, 30% will be clean up/management. Because all work must be done in NS201, one of your biggest challenges will be finding time and making sure you are not leaving any messes (remember BOTH Dr. Dutton AND I teach in NS201 in the winter!).

d. I expect you to begin your poster (or talk) development VERY early spring term:

Week 1: abstract draft DUE – your first attempt (work on winter and spring break!)
Week 2: complete abstract, develop "big picture" schematic of poster/talk
Week 4: GOOD full poster/talk draft review
Week 6: poster or talk DONE and printed!

I expect this timeline because (a) I am overloaded with teaching in the spring; (b) it gets REALLY crazy right before the Academic Excellence Showcase and I want to avoid that mess; and (c) I am typically out of town a week mid-spring term with my national ASM-Microbiology/Education meeting.

Cheers, Dr. Boomer!