



# What Students Want vs. What Students Need in Physiology Education

Models of applied and foundational  
physiology education at BYU





# Why do undergrads choose a physiology-related major?

- Most Start as Premed/Other Preprofessional
  - Often choosing as a freshman, with hopping to other majors later





# The various majors at BYU tell us something about what students want

- Cell Biology & Physiology (or...Biophysics, Biochemistry)
  - “This major prepares me best to succeed in professional school!”
- Exercise Sciences (or...Biology)
  - “Friends say this is the quickest path to my ultimate career goals!”
  - “GPA is the most important thing for med school acceptance!”
- Neuroscience (or...Public Health, Nutrition)
  - “This sounds like a cool major! It “counts” all of the required courses!”
  - Students are looking for meaningful majors – These majors check that box for today’s students



# The various majors at BYU tell us something about what students want ... by the NUMBERS

- Cell Biology & Physiology (or...Biophysics, Biochemistry)
  - 300-400 Majors (+80-125 majors in each of the other programs)
- Exercise Sciences (or...Biology)
  - 1100-1300 Majors (700-900 in Biology, with attrition)
- Neuroscience (or...Public Health, Nutrition)
  - 500-700 Majors (200-400 in each of the other programs)

National trends might enhance differences?



# Physiology Curriculum at BYU ... Do faculty know what students need?

- CELL 305 (4 credits)
  - Physiology service course for several majors (Nursing, ExSci, Other)
- CELL 362 (3 credits)
  - Cellular/Molecular physiology (CELL, Neuroscience, Biochemistry)
- Pathophysiology and other advanced courses
  - Serve as electives for various majors
- Do we need two different courses?
  - Different How? Majors; Class size; focus; depth and breadth



# Can we measure something that will tell us...

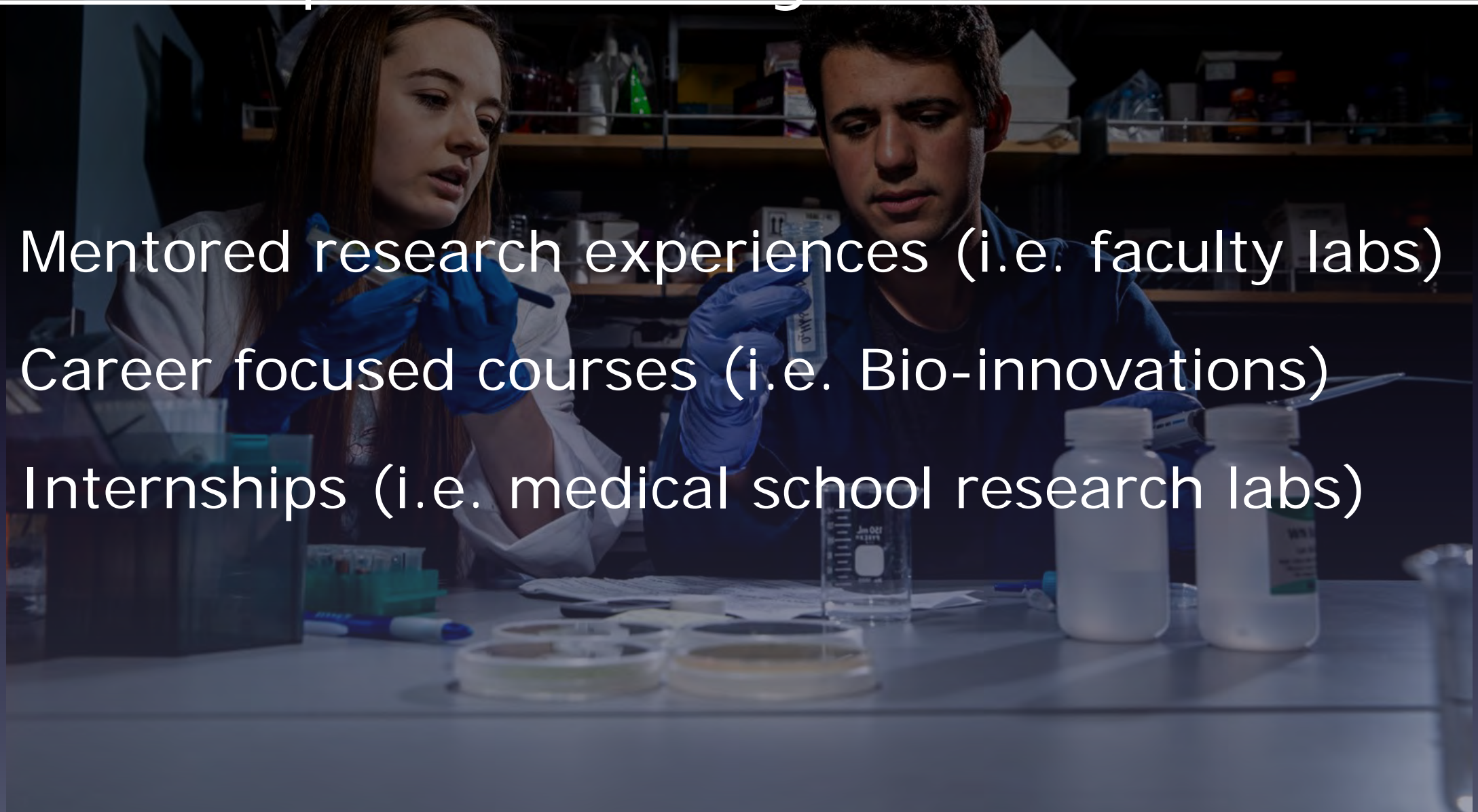
## what students need?

- Professional school admission rates
  - Similar between majors, but variation in reputation
- Student Satisfaction (Alumni Surveys)
  - 58% of our majors completed or are in a graduate program
  - At BYU, satisfaction of Life Sciences majors is 51%
  - Why?
- Do Life Sciences majors provide “alternative” career paths?
  - Preparation for “what if” a student’s career turns out differently



# Career Preparation: Undergraduate EXPERIENCES

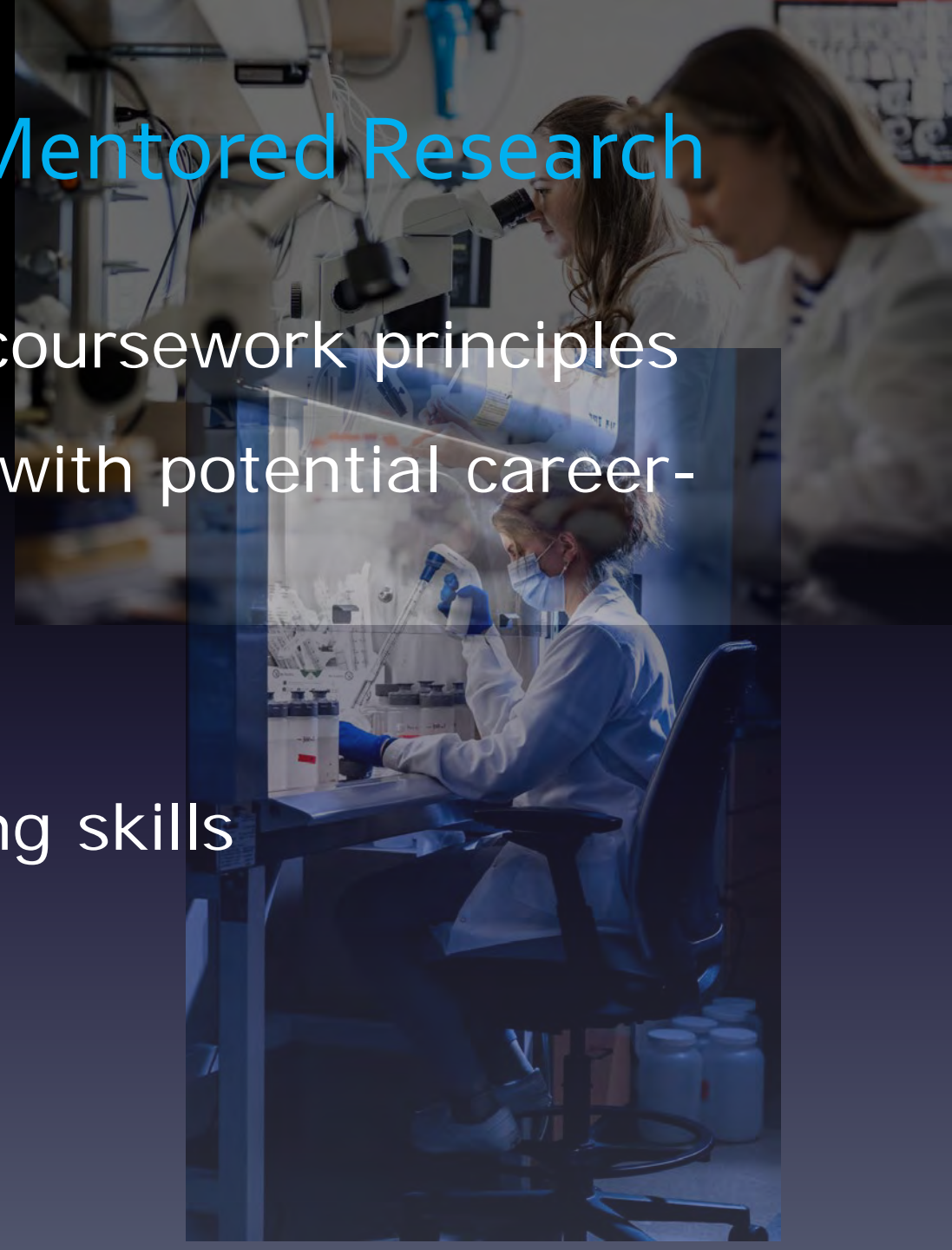
- Mentored research experiences (i.e. faculty labs)
- Career focused courses (i.e. Bio-innovations)
- Internships (i.e. medical school research labs)





# EXPERIENCE outcomes – Mentored Research

- Gain a deeper understanding of coursework principles
- Get a taste of scientific research with potential career-altering love for science
- Publications!
- Develop high-level critical-thinking skills
  - Improved technical writing skills
  - Improved data analysis skills





# EXPERIENCE outcomes – Career-focused courses

- Gain a deeper understanding Life Sciences industry
- Get a taste of entrepreneurship mindset with potential career-altering love for commercialization
- Develop novel skillset (i.e. collaborative mindset)



# EXPERIENCE outcomes – Internships/Study Abroad

- Gain exposure to a tier-1 research environment or industry-based environment
- Get an introduction to completely new scientific research questions with potential career-altering scientific interest
- Make important professional connections (networking)





# How do we bring wants and needs together?

- Trends may lead us there ... in time
  - Applied research using more cellular/molecular techniques
  - Foundational research (basic science) is becoming more applied
- Level the playing field (between majors)
  - Introduce more rigor into the applied majors
  - Make the more rigorous majors more appealing (i.e. more applicable to career goals; visible, world-changing focus)
- Communicate better about the majors ... including Outcomes
  - Give students needed information as they make their major/career choices



# Key Questions:

- What about BYU?
  - Two physiology course?
  - Several majors/departments?
  - Research Foci?
  - Career Development?
- How does this apply nationwide? Need for universal benchmarks in physiology education?
- Can we create established internship pipelines?





