

Degree Proposals: BS in Ecological Genetics, AS in Biotechnology

Statewide Initiatives and Goals:

1. STEM Education

- Literate State, Utah Businesses Back STEM Education Bill
- Need for STEM degrees in rural areas to stimulate economic growth

2. Preparing Students for Pre-Professional Programs

- Utah Medical Education Council
- Utah State Legislature – Medical Education
- Shortage of Health professionals in rural and frontier Utah
- Students educated in a rural area return to a rural area to practice

Economic Development:

1. Potential to attract biotechnology firms to rural Utah and our service area.
2. The need for individuals trained in genetics and biotechnology within the state of Utah is High.
2. Biotechnology firms could bring high paying jobs to our service area as well as produce tax revenue. Most biotechnology technician jobs (AS) start at around \$35,000 and most research associates (BS) start at \$55,000.
3. Potential ability to support existing industries in our service area with genetics work (Seed Industry, Government Agencies, Energy Companies)
4. High-paying jobs are expected to increase faster in biotechnology than in any other field of science.
5. Ability of rural Utah to attract industry due to lack of medical professionals and facilities.

Uniqueness:

1. No programs in the state focused on ecological genetics.
2. Required undergraduate research.
3. Have a placement center to help students get jobs and to help place them into professional and graduate programs.
4. Proven ability to take less prepared or underprepared rural students and get them prepared to get into professional and graduate programs.
5. Not only teach biotechnology students techniques, but experimental design and have them involved in research projects and design.

The Snow College Biology Department would like to propose a Bachelor of Science degree in Ecological Genetics in conjunction with an Associate of Science in Biotechnology. This degree would prepare students for jobs in genetics and biotechnology fields as well as prepare students to enter professional programs within the medical field. At the current time all faculty in the Biology Department on the Ephraim campus have terminal degrees. Six faculty members hold Ph.D. degrees and one holds a DPM degree.

Statewide Initiatives and Goals

This program would address two statewide initiatives and goals. The first initiative that would be addressed is the need for STEM degrees. The need for STEM degrees in rural areas is a specific concern for the state of Utah. Rural Utah counties have a difficult time attracting or do not even try to attract STEM based firms because of a lack of a workforce. In addition to the STEM education initiative the proposed program would address another state initiative of preparing medical professionals. There is a shortage of health professionals in rural and frontier Utah. Research shows that students that are educated in a rural area are more likely to return to rural areas to practice.

Economic Development

The current need for individuals with a degree in Ecological Genetics or Biotechnology within our service region is not high because there are no biotechnology firms within the service area. However, the reason for this is that economic development personnel have never pursued a biotechnology firm because there is not a workforce-ready population within our service area. Biotechnology firms could potentially bring high paying jobs into rural Utah. Most biotechnology technician jobs (AS) start at around \$35,000 and most research associate (BS) positions start at \$55,000. High paying jobs are expected to increase faster in biotechnology than in any other field of science. The need for individuals trained in genetics and biotechnology within the state of Utah is high. The need for biotechnology technicians that not only have good technique but also have the ability to understand experimental design and have research experience is extremely high. This degree could also support existing industries in our service area such as the seed industry, government agencies and energy companies. The ability of rural Utah counties to attract industry is hindered because of a lack of health professionals. Educating medical professionals at the pre-professional level at Snow College would increase the probability that those students would return to rural Utah to practice.

Uniqueness

There are no programs in the state of Utah focused on ecological genetics. The Biology Department believes that undergraduate research should be an important part of this proposal. Every graduate of this program would be required to be involved in the undergraduate research program. The biotechnology program would be very unique because we would not only teach the students proper techniques but the students would be involved in experimental design and would be involved in research projects. Undergraduate research not only helps students to understand experimental design, but it helps to build critical thinking skills as well teaches students how to approach and solve problems that have never been solved before. The Biology Department also believes that it is important to have a placement center to help students get jobs and to get accepted into professional and graduate programs. Most students that graduate do not realize the full potential for available jobs and professional programs and this hinders their ability to enter the workforce. One area where the Biology Department at Snow College is unique is in their ability to take less prepared students, often from rural Utah, and get them prepared to get into professional and graduate programs.