M.S. Biotechnology Science Program Statements

The vision of the M.S. Biotechnology Science program offered by the NJ Center for Science, Technology & Mathematics (NJCSTM) is to advance the knowledge and skills of students already holding a science bachelor’s degree via a master’s program of science that is current in its content and attractive in its flexibility and design. The mission of this program is to prepare students for employment in the expanding field of biotechnology through course work and laboratory experiences. NJCSTM has three driving goals for this program. First, to train professionals in biotechnology with both highly developed practical laboratory skills and with the potential to further their professional development as scientific technologies advance. Second, to graduate versatile resourceful scientists with the critical ability to adjust to their ever-changing field of employment. And third, to prepare strong candidates for graduation who may wish to continue their education by pursuing their doctorate in a related field of study or otherwise seek career employment in the scientific industry.

M.S. Biotechnology Science Student Learning Outcomes (SLOs)

NOTES:
SWR = scored with rubric
2011-12 SLO #5 was merged with SLO#2 as both were aspects of holistic knowledge

For the Student Earning a M.S. Degree in Biotechnology Science
It is our expectation that graduates from the NJCSTM will have these characteristics:

• SLO1 (Applied Knowledge): Graduates will possess adequate analytical laboratory and research skills, demonstrate instrumentation operation and applicable software knowledge currently used in biotechnology and related disciplines (genetic engineering, analytical chemistry, bioinformatics, molecular & cellular biology) to enter the biotech or pharmaceutical industry. (KU 1, KU2, KU 4)
  • 5 Direct Measures: Lab practical scored with rubric, SWR (STME 5140); Lab practical SWR (STME 5170); Paper and presentation SWR (STME 5410-15); Paper SWR (STME 5615); Paper SWR (STME 5810)
  • 1 Indirect Measure: Graduating Student Survey.

• SLO 2 (Holistic Knowledge): Graduates will be able to combine critical thinking skills and analytical knowledge to design, perform, and analyze scientific problems in the laboratory both as an individual and as effective and productive project team members, and know the origins of biotechnology and its importance in society. (KU 1, KU 2, KU 4)
  • 6 Direct Measures: Paper SWR (STME 5103); Lab practical SWR (STME 5140); Lab practical SWR (STME 5170); Paper and presentation SWR (STME 5410-15 or STME 5400); Paper SWR (STME 5615); Paper SWR (STME 5810)
  • 1 Indirect Measure: Graduating Student Survey.
• SLO3 (Ethics): Graduates will have adequate knowledge of the bioethical standards of the science profession and be able to exercise ethical awareness. (KU 1, KU 3)
  • 2 Direct Measures: Certificate of completion of National Institute of Health (NIH) Training course of human participants in research (STME 5020); Reaction paper to Kean Academic Integrity Policy SWR (STME 5103)
  • 1 Indirect Measure: Graduating Student Survey.

• SLO4 (Communication): Graduates will be able to verbally express themselves and communicate scientific comprehension and knowledge in both formal oral presentations and in written format clearly, concisely and accurately. (KU 1, KU 4)
  • 4 Direct Measures: Paper SWR (STME 5103); Paper and presentation SWR (STME 5410-15 or STME 5400); Paper SWR (STME 5615); Paper SWR (STME 5810)
  • 1 Indirect Measure: Graduating Student Survey.

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M.S. Biotechnology Science Program SLOs – as aligned with KU SLOs derived from the Institutional Mission* and GE SLOs.** Data from Direct and Indirect Measures collected each semester in the Culminating Course.

* KU Student Outcomes: Kean University graduates should be able to:
  1. Think critically, creatively and globally;
  2. Adapt to changing social, economic, and technological environments;
  3. Serve as active and contributing members of their communities; and
  4. Advance their knowledge in the traditional disciplines (GE) and enhance their skills in professional areas.

**General Education Student Learning Outcomes (Not listed as not directly applicable to graduate programs)