Seacoast School of Technology
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SEACOAST SCHOOL OF TECHNOLOGY

Biotechnology Competencies

	Technical Competencies
	1. Apply proper safety and disposal practices while utilizing chemical and biological agents.
	2. Demonstrate an ability to utilize SDS appropriately and be able to recognize universally recognized hazard symbols.
	3. Prepare and Utilize SOPs (Standard Operating Procedures).
	4. Practice aseptic technique.
	5. Utilize and apply principles of measurement.
	6. Demonstrate proper use of instrumentation.
	7. Practice troubleshooting and maintenance of equipment.
	8. Demonstrate the ability to utilize the scientific method.
	9. Apply proper experimental design.
	10. Define and differentiate GLP, GMP, GDP.
	11. Practice quality assurance, quality control and operate under regulatory agencies: FDA, ISO, NFS, etc.
	12. Practice culturing techniques.
	13. Employ identification techniques.
	14. Determine cell concentrations.
	15. Apply appropriate concepts in relation to disease, disease spread and prevention.
	16. Demonstrate an ability to properly identify cells and their parts.
	17. Interpret interaction of cell and its environment.
	18. Demonstrate microscopy skills
	19. Demonstrate plant and animal cell culture skills.
	20. Understand the principals of proper cryogenic techniques.
	21. Employ immunological techniques for identification.
	22. Explain techniques for mono/polyclonal antibody productions.
	23. Describe the role of antibodies in cell based assays.
	24. Apply concepts and/or techniques of analytical chemistry.
	25. Calculate and prepare solutions.
	26. Predict and/or manipulate chemical reactions.
	27. Illustrate and employ enzymatic reactions.
	28. Diagram the flow of energy and matter through a system.
	29. Utilize and demonstrate biomolecules and their interactions.
	30. Explain principals of protein structure and function.
	31. Utilize and apply purification techniques.
	32. Explain the relationship between DNA and protein synthesis.
	33. Utilize bioinformatics technology.
	34. Explain and apply techniques in molecular biology.
	35. Explain the various departments and their roles in a business model of a biotech company.
	36. Discuss bioethical case studies.
	Career Ready Practices
	37. Demonstrate personal growth, community leadership, democratic principles and social responsibility.
	38. Develop, practice and demonstrate skills through participation in biotechnology events, including those offered through student organizations.
	39. Act as a responsible and contributing citizen and employee.
	40. Apply appropriate academic and technical skills.
	41. Attend to personal health and financial well-being.
	42. Communicate clearly, effectively and with reason.
	43. Consider the environmental, social and economic impacts of decisions.
	44. Demonstrate creativity and innovation.
	45. Employ valid and reliable research strategies.
	46. Utilize critical thinking to make sense of problems and persevere in solving them.
	47. Model integrity, ethical leadership and effective management.
	48. Use technology to enhance productivity.
	49. Work productively in teams while using cultural/global competence.
	50. Plan education and career path aligned to personal goals.