

	Implementation schedule	Physically/re motely	Contact hours	Autonomous work for students (max hours)	Learning outcomes
<b>Activity 1</b>	Introduction to Extracellular Vesicles in Marine Systems	<b>Remotely</b>	<b>4</b>	<b>6</b>	Understand the fundamental characteristics and biological functions of exosomes in aquatic organisms.
<b>Activity 2</b>	Biogenesis and Molecular Cargo of Exosomes	<b>Remotely</b>	<b>5</b>	<b>8</b>	Comprehend mechanisms of exosome biogenesis, secretion, and intercellular signaling in marine species.
<b>Activity 3</b>	Exosomes in Aquatic Organisms	<b>Remotely</b>	<b>5</b>	<b>8</b>	Analyze the role of exosomes in immune responses and antiviral defense in fish and other aquatic organisms.
<b>Activity 4</b>	Marine Biotechnology Applications	<b>Remotely</b>	<b>7</b>	<b>10</b>	Develop skills in navigating bioinformatics databases and tools for exosome-related data analysis.

<b>Activity 5</b>	Introduction to Biological Databases and Bioinformatics Resources	<b>Remotely</b>	<b>6</b>	<b>12</b>	Apply bioinformatics methods to study exosome-associated genes, miRNAs, and proteins in a model organism.
<b>Activity 6</b>	Gene and Pathway Exploration Workshop	<b>Remotely</b>	<b>7</b>	<b>13</b>	Perform comparative analysis of exosomal profiles across species using transcriptomic and proteomic data.
<b>Activity 7</b>	Project Development and Scientific Interpretation	<b>Remotely</b>	<b>4</b>	<b>10</b>	Evaluate practical applications of exosomes in marine biotechnology, including disease management and aquaculture strategies.
<b>Activity 8 (mandatory)</b>	Preparation of a presentation for the “Closing virtual workshop on Undergraduate activities”	<b>Remotely</b>	<b>2</b>	<b>18</b>	Enhance proficiency in written and oral communication within a particular field, utilizing specialized terminology
<b>Total Hours</b>			<b>40</b>	<b>85</b>	<b>125</b>