

Department of Biomedical & Pharmaceutical Sciences
Idaho State University
Learning Outcomes

Course	Learning Outcomes
PSCI 5508 – Responsible Conduct in Research	<ul style="list-style-type: none"> • Personal, professional, and financial conflicts of interest. • Policies regarding human subjects, live vertebrate animal subjects in research, and safe laboratory practices. • Mentor/mentee responsibilities and relationships. • Collaborative research including collaborations with industry. • The peer-review process. • Data acquisition and the management, sharing, and ownership of laboratory tools. • Research misconduct and policies for handling misconduct. • Responsible authorship and publication. • The scientist as a responsible member of society. • Contemporary issues in biomedical research. • Environmental and societal impacts of scientific research.
PSCI 6605 – Critical Literature Evaluation	<ul style="list-style-type: none"> • Develop the ability to critically read biomedical literature; • Develop the ability to evaluate the merits and putative deficiencies of scientific papers; • Learn to choose a published scientific paper for critical evaluation; and • Learn to lead a discussion of the merits and putative deficiencies of a selected scientific paper.
PSCI 6609 – Advanced Drug Delivery	<ul style="list-style-type: none"> • To provide up-to-date information of the basics, formulation strategies, and various therapeutic applications of advanced drug delivery.
PSCI 6611 – Current Topics in Pharmaceutics and Drug Delivery	<ul style="list-style-type: none"> • To cover the most recent updates in the field of pharmaceutics and drug delivery.
PSCI 6620 – Principles of Drug Design	<ul style="list-style-type: none"> • Identify functional groups present on the drug, describe the physical and chemical properties of those functional groups and their effect on

	<p>the properties of the molecules as a whole in a physiological system.</p> <ul style="list-style-type: none"> • Understand the relationships between the chemical structure of the drug and its biological mechanism of action. • Understand the physical and chemical properties of the drug as they relate to the drug's absorption, distribution, elimination, metabolism, and toxicities (ADMET). • Predict the chemical pathways to the drug's metabolism by identifying the several functional groups on the drug.
PSCI 6631 – Cancer Biology	<ul style="list-style-type: none"> • Personal, professional, and financial conflicts of interest. • Policies regarding human subjects, live vertebrate animal subjects in research, and safe laboratory practices. • Mentor/mentee responsibilities and relationships. • Collaborative research including collaborations with industry. • The peer-review process. • Data acquisition and the management, sharing, and ownership of laboratory tools. • Research misconduct and policies for handling misconduct. • Responsible authorship and publication. • The scientist as a responsible member of society. • Contemporary issues in biomedical research. • Environmental and societal impacts of scientific research.
PSCI 6634 – Current Topics in Oncology	<ul style="list-style-type: none"> • To understand the various cellular mechanisms that give rise to cancer and identify the current cancer therapies that target these mechanisms.
PSCI 6653 – Principles of Biopharmaceutical Analysis	<p>Students will have an understanding and increased awareness of the following:</p> <ul style="list-style-type: none"> • A fundamental understanding of the control of quality in analytical methods, including error analysis, accuracy and precision, procedure validation, and reporting results. • Principles, theory, and application of chromatographic separation and analytical methods, including gas and liquid chromatography and coupled MS methods. • Principles, theory, and application of spectroscopic methods in the qualitative and

	<p>quantitative measure of drug or drug-like molecules, including mass spectrometry, UV/Vis spectroscopy, IR spectroscopy, and NMR spectroscopy.</p> <ul style="list-style-type: none"> • Principles, theory, and application of microscopic analytical methods useful for pharmaceutical analysis, including SEM, TEM, and confocal microscopy. • Fundamental understanding of the methods used in extraction techniques, including solvent extraction, solid-phase extractions, and microdialysis. • Principles of natural product isolation and analysis. • Principles of qualitative and quantitative analysis of biologics or biotechnologically produced drugs. • Special topics
PSCI 6660 – Molecular Pharmacology	<ul style="list-style-type: none"> • The basic principles of molecular pharmacology • Animal based methods to interrogate drug targets • Cell based methods to interrogate drug targets • Expression based methods • Structure based methods • Biochemical and structural properties of druggable molecular targets, including enzymes, membrane receptors, ion channels, transcription factors, transporters, nucleic acids. • Signal transduction mechanisms (chemokine, cytokines, kinases, growth factors, survival factors, integrins, etc.) and common intracellular signaling pathways. <ul style="list-style-type: none"> ○ GPCR signaling ○ Calcium signaling ○ Ion Channel signaling ○ Signaling Complexes ○ Apoptotic pathways • Basic techniques of genetic manipulation.