DEPARTMENT OF BIOCHEMISTRY
BIOCHEMISTRY 499 - INDEPENDENT RESEARCH FOR UNDERGRADUATES
PROJECT INFORMATION SHEET

Biochemistry 499 is a variable credit course intended for upper-division biochemistry or chemistry majors in the Bachelor of Science curriculum, especially those planning graduate work. It is offered on a Credit/No Credit basis, and students should have a 3.0 minimum gpa, and a science gpa of 3.5; however, some exceptions may be made under certain circumstances.

Course faculty access codes may be obtained in the main biochemistry office, J-405 Health Sciences Building or from the Chemistry Advising Office in Bagley 303 or via email at advisers@chem.washington.edu, after approval has been received from the BIOC 499 Faculty Supervisor.

Faculty Name	Research Interests and Comments	Prerequisites	Minimum # of Qtrs
M. Ailion J341 HSB 685-0111 mailion@uw.edu	Neuromodulation, genetics of hybrid incompatibility	Biology, biochemistry, or genetics coursework	6
D. Baker J567 HSB dabaker@uw.edu	Protein design	Strong motivation to learn and to develop research skills	Prefer students who start sophomore year and commit through senior year
S. Brockerhoff 750 Republican St. Vision Science Center Seattle, Washington 616-9464 sbrocker@uw.edu	Retinal disease in zebrafish	Some biology and chemistry course work; concurrent enrollment or completion of biochemistry course	2
J. Chamberlain S249 SLU Jsc5@uw.edu	Muscular dystrophy therapeutics	Biology, Biochemistry or Genetics; some lab work preferable, self-starter	Prefer multi-year commitment
V. Daggett 300H RTB 685-7420 daggett@uw.edu	Protein folding and dynamics, protein misfolding diseases, Alzheimer's Disease, functional amyloid in biofilms	Chemistry, biochemistry, microbiology, informatics or neuroscience	3

Faculty Names	Research Interests and Comments	Prerequisites	Minimum # of Qtrs
T. Davis J459 HSB 543-5345 tdavis@uw.edu	Cell biology, chromosome segregation, mitosis	Completion of BIOC 440; concurrent registration in BIOC 441 or 442	2-3
D. Eyre BB-1046 HSB 543-4700 deyre@uw.edu	Extracellular matrix of skeletal tissues in human disease	Coursework in biochemistry/genetics or cell biology	2-3
L. Gu J579 HSB 221-7730 gulc@uw.edu	1) Biosensor engineering for small molecule sensing and control; 2) In situ (or spatial) transcriptomics and proteomics technologies.	Course in biochemistry / chemistry / computer science / bioinformatics or concurrent registration	3 preferred
S. Hauschka J541 HSB 543-1797 haus@uw.edu	Skeletal and cardiac muscle development and gene regulation; students will participate in research involving assays of muscle gene expression via RT-PCR or immunohistochemistry or in studies involving the modification and testing of muscle gene control elements	Completion of BIOC 440 series; sufficient time commitment to spend about 15 hours per week in the lab.	3
J. Hurley J631D HSB 543-2871 jbhhh@uw.edu	Vision; phototransduction; G-proteins; Drosophila signal transduction	Some chemistry and/or biochemistry or biology and/or physiology coursework	2 to 3
D. Kimelman J535 HSB 543-5730 kimelman@uw.edu	Embryonic development zebrafish: regulation of intercellular signaling and gene expression	BIOC 440 series or concurrent registration ok	3
N. King NanoES 494 neilking@uw.edu	Design of protein-based nanomaterials for medical applications; vaccine design; biologics delivery please see https://www.ipd.uw.edu/join-us/ for more information.	Strong motivation to gain research experience and make new things with proteins; ability to manage the time required to pursue laboratory research	6
Y. Kwon J437 HSB 543-6517 ykwon7@uw.edu	Genetic studies of tumors, metastasis, cachexia using Drosophila; Signaling pathways; Intestinal stem cells and tissue maintenance	Strong motivation to develop research skills	4

Faculty Names	Research Interests and Comments	Prerequisites	Minimum # of Qtrs
R. Klevit K466A HSB 543-5891 klevit@uw.edu	Structure of proteins involved in human disease; protein ubiquitination; small heat shock proteins; NMR studies of proteins - **preference given to students seeking honors thesis projects**.	BIOC 440 or BIOC 450 series or concurrent registration; physical chemistry or concurrent registration.	4
J. Kollman 391 HSJ 543-4051 jkoll@uw.edu	Structural biology of molecular machines and metabolic assemblies using cryo-EM	Some chemistry, biochemistry, or biology coursework	4
L. Loeb K072 HSB 543-6015 laloeb@uw.edu	Molecular basis of mutations and cancer; fidelity of DNA polymerization	Course in biochemistry; familiarity with concepts in genetics and molecular biology	2-3 preferred
A. Merz J357 HSB 616-8308 merza@uw.edu www.merzlab.org	Membrane biology; golgi dynamics; protein biochemistry; electron microscopy; genetics	Introductory chemistry (with lab); some biology, biochemistry, or genetics	2-3 preferred
D. Miller J587 HSB 685-5025 DLM16@uw.edu	Mapping pathways that protect cells and tissues from low oxygen. Epigenetic responses to sulfide, and interactions between food deprivation, low oxygen, and sulfide at the level of organism physiology - **preference given to students seeking Honors thesis projects**	Biology or biochemistry coursework	3 preferred. Students are expected to earn course credit after their first quarter.
R. Palmiter J661 HSB 543-6064 palmiter@uw.edu	Mouse genetics and viral transduction to decipher neural circuits that control behaviors; particularly interested in circuits that are in control of appetite and responses to threats	Interest in mouse behavior; several quarters of biology/genetics preferred	>3

Faculty Names	Research Interests and Comments	Prerequisites	Minimum # of Qtrs
H. Ruohola-Baker J581 HSB 543-8468 hannele@uw.edu	The Ruohola-Baker laboratory studies the molecular and cellular properties that are required for stem cell states and their differentiation capacity, both in normal and pathological situations. The laboratory presently works on three questions: 1) metabolic determinants of stem cells; 2) designing and testing novel computationally-designed proteins in *in vitro* system towards potential therapeutic. Specifically, we will use these designed protein tools to dissect various signaling pathway mechanisms and utilizing them in differentiating induced pluripotent stem cells (iPSCs) towards different cell fate; 3) the molecular mechanism of stem cell quiescence and protection against aging.	Biology or biochemistry class	3
A. Wills J433 HSB 543-1748 aewills@uw.edu	Transcriptional regulation of vertebrate regeneration and development	Biology or biochemistry coursework; familiarity with concepts in genetics and molecular biology	3