

CURRICULUM GUIDE: OFFICIAL COURSE OUTLINE

Course Code	PHYS 101	Course Title	Physics for the Life Sciences I			
Credit Value	4	Department	Mathematics and Science			
No. of weeks	14	Hrs. per week	<i>Lecture</i>	<i>Tutorial</i>	<i>Laboratory</i>	<i>Total</i>
			3	0	3	6
Course Description	<p>First part of a two-semester general-physics survey course intended principally for life-science majors. Topics covered include Newtonian mechanics, physics of fluids, material properties, heat and thermodynamics with applications to the life sciences.</p> <p>Students may receive credit for only one of Phys 101 or Phys 141; Phys 102 or Phys 142.</p>					
Prerequisite(s)	ENGL 099, PHYS 12 or PHYS 100 (B), MATH 104 or MATH 151 (MATH 104 or 151 may be taken concurrently)					
Initial Articulation Targets	<i>UBC</i>	<i>SFU</i>	<i>UVic</i>	<i>UNBC</i>	<i>TRU</i>	
	PHYS 100 (3)	PHYS 101 (3) Q/B-Sci	PHYS 1XX (1.5)	PHYS 100 (4)	PHYS 1100 (3)	
	For updated information on the transferability of this course, please consult the BC Transfer Guide, www.bctransferguide.ca					
Learning Outcomes	<p>Upon successful completion of this course, the student will be able to:</p> <ul style="list-style-type: none"> • Draw free-body diagrams to determine the forces on an object. Forces include gravity, spring force, normal force, friction, drag, and tension. • Predict the motion of rotating objects using Newton's laws and work-energy theorem and conservation of mechanical energy. • Predict the motion of objects undergoing simple harmonic motion. • Explain the differences between traveling waves and standing waves and solving problems using their mathematical representations. • Relate forces to pressure and buoyancy and work-energy theorem to fluids in motion. • Predict results using the laws of thermodynamics and explaining heat transfer mechanisms. • Set-up, record, and analyze data from experiments using uncertainty analysis and compare the results to theory. 					
Content	<p>Core topics – all of the following will be covered:</p> <ul style="list-style-type: none"> • Review of Linear Kinematics and Dynamics • Review of Work and Energy • Rotational Dynamics • Simple Harmonic Motion • Traveling Waves and Standing Waves • Fluid Statics and Fluid Dynamics • Thermodynamics 					

	Additional topics may also be covered, at the discretion of the instructor.		
Methods of Instruction	Lectures, problem sessions, assignments, laboratory work, presentations, assigned reading, quizzes, exams		
Required Textbook(s)	The following textbook(s) is/are required, or approved equivalent(s). Giancoli, Douglas C. Physics: Principles with Applications. 7th Ed. Toronto: Pearson, 2013.		
Required Equipment and Technology	Students are required to have a computer with internet access. The following resources are provided by the College: <ul style="list-style-type: none"> • Office 365 • Student email 		
Homework Hours	At minimum, students can expect one hour of homework for every hour of instructional time.		
Evaluation	<i>Component</i>	<i>% Value</i>	
	Assignments, quizzes, presentations	10-25%	
	Labs	10-20%	
	Midterm examinations (1-2)	20-40%	
Final examination	30-35%		
Completion Requirements	The minimum grade to pass this course is D (50%). Unless otherwise stated, a minimum grade of C- (55%) is required for this course to fulfil a prerequisite.		
Course Designer(s)	Michael Wortis, Ph.D., Professor Emeritus, Department of Physics, Simon Fraser University	Consultant(s), if applicable	Neil Alberding, Ph.D., Department of Physics, Simon Fraser University and other SFU faculty/staff
Dean's Approval	Marv Westrom, Ph.D. Professor Emeritus, Faculty of Education, University of British Columbia	Dean's Approval Date	September 29, 2010
Curriculum Committee Approval Date	September 29, 2010	First Term Offered	Winter 2011
Last Review Date	September 28, 2022	Next Review Date	September 28, 2027
Revision History	September 28, 2022-Minor revisions and updates by Kelly Cheung.		