College	Liberal Arts & Sciences				
Department	Physics & Astronomy				
Major/Program	Physics				
Department or Program Mission: The mission of the Department of Physics & Astronomy is to develop and maintain an environment in support of rigorous, structured and efficient learning. We serve the intellectual needs of a broad					
Summary of General Assessment Strategy: The physics program has three primary types of students, differentiated by their desired career goals: 1) career physicsts and/or engineers, 2) teaching or some other technical career, 3)					
Program Goals (Broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve.)	**Learning Goals** (Narrower statements that describe what students are expected to know and be able to do at graduation. These relate to the skills, knowledge, and behaviors that students acquire in their matriculation through the program.)	**Learning Outcomes** (Performance Indicators that show the student meets Learning Goals.)	**Location(s) in Curriculum and Level of Instruction** (I-introduce, R-reinforce, E-emphasize)	**Available Course-Level or Programmatic Assessment Evidence** (papers, projects, exams, portfolios, etc.)*	**Timetable** (frequency of assessment cycles)
Prepare students for a rigorous graduate school experience to allow them to become effective physicists or engineers	Students will have a strong conceptual understanding of the core ideas in physics	Students can identify the core conceptual ideas	I: 3-course intro sequence; R: core upper level courses	Homework sets, exams; content pre-/post-class concept assessments (for intro level classes)	~Weekly, ~2–3/semester; beginning/end of semester
		Students can describe the meaning of the core conceptual ideas	I: 3-course intro sequence; R: core upper level courses	Homework sets, exams; content pre-/post-class concept assessments (for intro level classes)	~Weekly, ~2–3/semester; beginning/end of semester
		Students can state which core conceptial ideas are in play in verbal or pictorial descriptions of physical situations	I: 3-course intro sequence; R: core upper level courses	Homework sets, exams; content pre-/post-class concept assessments (for intro level classes)	~Weekly, ~2–3/semester; beginning/end of semester
	Students can critically analyze, set-up, and solve complex "real world" problems in all physics core areas	Students can move from key conceptual ideas to formulaic representations	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
		Students can describe a "plan of attack" to move from problem description to formulaic representation	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
		Students can identify core ideas in standard formula notation	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
		Students can identify knowns and unknowns in problem and forumla representation	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
	Students will understand the process of science	Students can describe the differences between "fact" or data, "hypothesis", and "theory"	I: 3-course intro sequence; R: research courses and Advanced Lab	Lab exercises	~Weekly
		Students can describe the limitations of experimental procedures (uncertainty, precision, accuracy)	I: 3-course intro sequence; R: research courses and Advanced Lab	Lab exercises	~Weekly
	Students can perform professional level science by working on cutting-edge projects.	Students interested in experimental science can design and perform an experiment which includes a measurement and subsequent analysis of results.	I: Modern Physics; Electric Circuits; Optics and Light RE:Research; Advanced Lab	Lab exercises; projects	~Weekly
		Students interested in theoretical science can setup and solve a theoretical problems which may be analytical in solution or numerical.	I: Quantum I; E&M I RE:Quantum II; E&M II; Statistical Physics; Research	Projects	~Weekly
	Students can present professional level science in written and oral/poster formats	Students can identify the main points and results of a project	IRE: Advanced Lab; research courses	Course exercises, homework, exams, project	~Weekly, ~2–3/semester
		Students can organize a presentation on paper, poster, or talk	IRE: Advanced Lab; research courses	Course exercises, homework, exams, project	~Weekly, ~2–3/semester
		Students can identify the best means of representing their results (image, graph, chart, etc.)	IRE: Advanced Lab; research courses	Course exercises, homework, exams, project	~Weekly, ~2–3/semester
		Students can balance the competing needs of clarity and succintness	IRE: Advanced Lab; research courses	Course exercises, homework, exams, project	~Weekly, ~2–3/semester
Prepare students to be effective high school teachers or enter technical professions	Students will have a strong conceptual understanding of the core ideas in physics	Students can identify the core conceptual ideas	I: 3-course intro sequence; R: core upper level courses	Homework sets, exams; content pre-/post-class concept assessments (for intro level classes)	~Weekly, ~2–3/semester; beginning/end of semester
		Students can describe the meaning of the core conceptual ideas	I: 3-course intro sequence; R: core upper level courses	Homework sets, exams; content pre-/post-class concept assessments (for intro level classes)	~Weekly, ~2–3/semester; beginning/end of semester

		Students can state which core conceptial ideas are in play in verbal or pictorial descriptions of physical situations	I: 3-course intro sequence; R: core upper level courses	Homework sets, exams; content pre-/post-class concept assessments (for intro level classes)	~Weekly, ~2–3/semester; beginning/end of semester
	Students can critically analyze, set-up, and solve "real world" problems in all physics core areas	Students can move from key conceptual ideas to formulaic representations	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
		Students can describe a "plan of attack" to move from problem description to formulaic representation	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
		Students can identify core ideas in standard formula notation	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
		Students can identify knowns and unknowns in problem and forumla representation	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
	Students will understand the process of science	Students can describe the differences between "fact" or data, "hypothesis", and "theory"	I: 3-course intro sequence; R: research courses and Advanced Lab	Lab exercises	~Weekly
		Students can describe the limitations of experimental procedures (uncertainty, precision, accuracy)	I: 3-course intro sequence; R: research courses and Advanced Lab	Lab exercises	~Weekly
Prepare students to enter technically oriented professions or grad programs (e.g. medicine, law, journalism, etc.)	Students will have a good conceptual understanding of the core ideas in physics	Students can identify the core conceptual ideas	I: 3-course intro sequence; R: core upper level courses	Homework sets, exams; content pre-/post-class concept assessments (for intro level classes)	~Weekly, ~2–3/semester; beginning/end of semester
		Students can describe the meaning of the core conceptual ideas	I: 3-course intro sequence; R: core upper level courses	Homework sets, exams; content pre-/post-class concept assessments (for intro level classes)	~Weekly, ~2–3/semester; beginning/end of semester
		Students can state which core conceptial ideas are in play in verbal or pictorial descriptions of physical situations	I: 3-course intro sequence; R: core upper level courses	Homework sets, exams; content pre-/post-class concept assessments (for intro level classes)	~Weekly, ~2–3/semester; beginning/end of semester
	Students can critically analyze, set-up, and solve complicated "real world" problems in a the major physics core areas	Students can move from key conceptual ideas to formulaic representations	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
		Students can describe a "plan of attack" to move from problem description to formulaic representation	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
		Students can identify core ideas in standard formula notation	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
		Students can identify knowns and unknowns in problem and forumla representation	I: 3-course intro sequence; R: core upper level courses	In-class groupwork, homework sets, exams	~Weekly, ~2–3/semester
	Students will understand the process of science	Students can describe the differences between "fact" or data, "hypothesis", and "theory"	I: 3-course intro sequence; R: research courses and Advanced Lab	Lab exercises	~Weekly
		Students can describe the limitations of experimental procedures (uncertainty, precision, accuracy)	I: 3-course intro sequence; R: research courses and Advanced Lab	Lab exercises	~Weekly
Additional Assessment Data					
Assessment Tool **(surveys, curriculum evaluation, focus groups, self-study, program review, etc.)**	**Purpose of Assessment**	**Timetable** **(frequency of assessment cycles)**			
Department created Exit Survey	Poll graduating senoirs through recent graduates on the utility of several aspects of our curriculum and department as a whole towards helping them meet their career goals	At/after graduation (so 1/year for us, 1 for each student)			