UC San Diego - WASC Exhibit 7.1
Inventory of Educational Effectiveness Indicators

Academic Program	(2) What are these learning outcomes? Where are they published? (Please specify)	(3) Other than GPA, what data/evidence is used to determine that graduates have achieved stated outcomes for the degree? (e.g., capstone course, portfolio review, licensure examination)	(4) Who interprets the evidence? What is the process?	(5) How are the findings used?
Department: *Physics* **Major:** *B.S. in Physics with specialization in Astrophysics* **(1) Have formal learning outcomes been developed?** *Yes* **(6) Date of last Academic Senate Review?** 2010-11	*The undergraduate curriculum in Physics prepares students for graduate school in Physics, professional school (medicine, law), industry or teaching. Students graduating with a Physics degree should be able to:* • *Demonstrate proficiency with mathematics and mathematical concepts* • *Work in a wide variety of technical, academic and professional careers* • *Demonstrate knowledge of classical and quantum mechanics, thermodynamics, and laboratory skills including mechanical design and machining, thermal design and control, computer interface to scientific equipment, optics design and laboratory electronics* • *Work in a professional laboratory setting* **Learning outcomes published:** • *Course syllabi* • *www-physics.ucsd.edu* • *Articulation agreements with California Community Colleges*	**Data/Evidence:** • *Lower-division requirements in physics, mathematics, chemistry and programming* • *Minimum of 56 units of upper-division courses in the major* • *Required upper-division courses in classical and quantum mechanics, electricity and magnetism, mathematical and computational physics, statistical and thermal physics, astrophysics, and advanced laboratory classes*	• *Committee of Undergraduate Advisors and Vice Chair for Education oversee requirements* • *Departmental Committee on Educational Policy reviews and approves any changes to curriculum, including new courses/programs* • *Vice Chair for Education acts on all requests/petitions for modification of requirements*	• *Individual course instructors, in consultation with Vice Chair for Education, use feedback to modify/improve their courses* • *The department adjusts requirements and course sequences for the major*

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Department: *Physics* **Major:** *B.A. in General Physics* **(1) Have formal learning outcomes been developed?** *Yes* **(6) Date of last Academic Senate Review?** 2010-11	*The undergraduate curriculum in Physics prepares students for graduate school in Physics, professional school (medicine, law), industry or teaching. Students graduating with a Physics degree should be able to:* • *Demonstrate proficiency with mathematics and mathematical concepts* • *Work in a wide variety of technical, academic and professional careers* • *Demonstrate knowledge of classical and quantum mechanics, thermodynamics, and laboratory skills including mechanical design and machining, thermal design and control, computer interface to scientific equipment, optics design and laboratory electronics* • *Work in a professional laboratory setting* **Learning outcomes published:** • *Course syllabi* • *www-physics.ucsd.edu* • *Articulation agreements with California Community Colleges*	**Data/Evidence:** • *Lower-division requirements in physics, mathematics, chemistry and programming* • *Minimum of 48 units of upper-division courses in the major* • *Required upper-division courses in classical and quantum mechanics, electricity and magnetism, mathematical and computational physics, statistical and thermal physics, and advanced laboratory classes*	• *Committee of Undergraduate Advisors and Vice Chair for Education oversee requirements* • *Departmental Committee on Educational Policy reviews and approves any changes to curriculum, including new courses/programs* • *Vice Chair for Education acts on all requests/petitions for modification of requirements*	• *Individual course instructors, in consultation with Vice Chair for Education, use feedback to modify/improve their courses* • *The department adjusts requirements and course sequences for the major*

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Department: *Physics* **Major:** *B.S. in Physics / Biophysics* **(1) Have formal learning outcomes been developed?** *Yes* **(6) Date of last Academic Senate Review?** 2010-11	*The undergraduate curriculum in Physics prepares students for graduate school in Physics, professional school (medicine, law), industry or teaching. Students graduating with a Physics degree should be able to:* • *Demonstrate proficiency with mathematics and mathematical concepts* • *Work in a wide variety of technical, academic and professional careers* • *Demonstrate knowledge of classical and quantum mechanics, thermodynamics, and laboratory skills including mechanical design and machining, thermal design and control, computer interface to scientific equipment, optics design and laboratory electronics* • *Work in a professional laboratory setting* **Learning outcomes published:** • *Course syllabi* • *www-physics.ucsd.edu* • *Articulation agreements with California Community Colleges*	**Data/Evidence:** • *Lower-division requirements in physics, mathematics, chemistry and programming* • *Minimum of 52 units of upper-division courses in the major* • *Required upper-division courses in classical and quantum mechanics, electricity and magnetism, mathematical and computational physics, statistical and thermal physics, biophysics, and advanced laboratory classes*	• *Committee of Undergraduate Advisors and Vice Chair for Education oversee requirements* • *Departmental Committee on Educational Policy reviews and approves any changes to curriculum, including new courses/programs* • *Vice Chair for Education acts on all requests/petitions for modification of requirements*	• *Individual course instructors, in consultation with Vice Chair for Education, use feedback to modify/improve their courses* • *The department adjusts requirements and course sequences for the major*

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Academic Program	(2) What are these learning outcomes? Where are they published? (Please specify)	(3) Other than GPA, what data/evidence is used to determine that graduates have achieved stated outcomes for the degree? (e.g., capstone course, portfolio review, licensure examination)	(4) Who interprets the evidence? What is the process?	(5) How are the findings used?
Department: *Physics* **Major:** *B.S. in Physics* **(1) Have formal learning outcomes been developed?** *Yes* **(6) Date of last Academic Senate Review?** *2010-11*	*The undergraduate curriculum in Physics prepares students for graduate school in Physics, professional school (medicine, law), industry or teaching. Students graduating with a Physics degree should be able to:* • *Demonstrate proficiency with mathematics and mathematical concepts* • *Work in a wide variety of technical, academic and professional careers* • *Demonstrate knowledge of classical and quantum mechanics, thermodynamics, and laboratory skills including mechanical design and machining, thermal design and control, computer interface to scientific equipment, optics design and laboratory electronics* • *Work in a professional laboratory setting* **Learning outcomes published:** • *Course syllabi* • *www-physics.ucsd.edu* • *Articulation agreements with California Community Colleges*	**Data/Evidence:** • *Lower-division requirements in physics, mathematics, chemistry and programming* • *Minimum of 56 units of upper-division courses in the major* • *Required upper-division courses in classical and quantum mechanics, electricity and magnetism, mathematical and computational physics, statistical and thermal physics, and advanced laboratory classes*	• *Committee of Undergraduate Advisors and Vice Chair for Education oversee requirements* • *Departmental Committee on Educational Policy reviews and approves any changes to curriculum, including new courses/programs* • *Vice Chair for Education acts on all requests/petitions for modification of requirements*	• *Individual course instructors, in consultation with Vice Chair for Education, use feedback to modify/improve their courses* • *The department adjusts requirements and course sequences for the major*

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Department: *Physics* **Major:** *B.S. in Physics with specialization in Computational Physics* **(1) Have formal learning outcomes been developed?** *Yes* **(6) Date of last Academic Senate Review?** *2010-11*	*The undergraduate curriculum in Physics prepares students for graduate school in Physics, professional school (medicine, law), industry or teaching. Students graduating with a Physics degree should be able to:* • *Demonstrate proficiency with mathematics and mathematical concepts* • *Work in a wide variety of technical, academic and professional careers* • *Demonstrate knowledge of classical and quantum mechanics, thermodynamics, and laboratory skills including mechanical design and machining, thermal design and control, computer interface to scientific equipment, optics design and laboratory electronics* • *Work in a professional laboratory setting* **Learning outcomes published:** • *Course syllabi* • *www-physics.ucsd.edu* • *Articulation agreements with California Community Colleges*	**Data/Evidence:** • *Lower-division requirements in physics, mathematics, chemistry and programming* • *Minimum of 68 units of upper-division courses in the major* • *Required upper-division courses in classical and quantum mechanics, electricity and magnetism, mathematical and computational physics, statistical and thermal physics, and advanced laboratory classes*	• *Committee of Undergraduate Advisors and Vice Chair for Education oversee requirements* • *Departmental Committee on Educational Policy reviews and approves any changes to curriculum, including new courses/programs* • *Vice Chair for Education acts on all requests/petitions for modification of requirements*	• *Individual course instructors, in consultation with Vice Chair for Education, use feedback to modify/improve their courses* • *The department adjusts requirements and course sequences for the major*

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Department: *Physics* **Major:** *B.S. in Physics with specialization in Earth Sciences* **(1) Have formal learning outcomes been developed?** *Yes* **(6) Date of last Academic Senate Review?** *2010-2011*	*The undergraduate curriculum in Physics prepares students for graduate school in Physics, professional school (medicine, law), industry or teaching. Students graduating with a Physics degree should be able to:* • *Demonstrate proficiency with mathematics and mathematical concepts* • *Work in a wide variety of technical, academic and professional careers* • *Demonstrate knowledge of classical and quantum mechanics, thermodynamics, and laboratory skills including mechanical design and machining, thermal design and control, computer interface to scientific equipment, optics design and laboratory electronics* • *Work in a professional laboratory setting* **Learning outcomes published:** • *Course syllabi* • *www-physics.ucsd.edu* • *Articulation agreements with California Community Colleges*	**Data/Evidence:** • *Lower-division requirements in physics, mathematics, chemistry and programming* • *Minimum of 56 units of upper-division courses in the major* • *Required upper-division courses in classical and quantum mechanics, electricity and magnetism, mathematical and computational physics, statistical and thermal physics, geophysics, and advanced laboratory classes*	• *Committee of Undergraduate Advisors and Vice Chair for Education oversee requirements* • *Departmental Committee on Educational Policy reviews and approves any changes to curriculum, including new courses/programs* • *Vice Chair for Education acts on all requests/petitions for modification of requirements*	• *Individual course instructors, in consultation with Vice Chair for Education, use feedback to modify/improve their courses* • *The department adjusts requirements and course sequences for the major*

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Department: *Physics* **Major:** *B.S. in Physics with specialization in Materials Physics* **(1) Have formal learning outcomes been developed?** *Yes* **(6) Date of last Academic Senate Review?** *2010-2011*	*The undergraduate curriculum in Physics prepares students for graduate school in Physics, professional school (medicine, law), industry or teaching. Students graduating with a Physics degree should be able to:* • *Demonstrate proficiency with mathematics and mathematical concepts* • *Work in a wide variety of technical, academic and professional careers* • *Demonstrate knowledge of classical and quantum mechanics, thermodynamics, and laboratory skills including mechanical design and machining, thermal design and control, computer interface to scientific equipment, optics design and laboratory electronics* • *Work in a professional laboratory setting* **Learning outcomes published:** • *Course syllabi* • *www-physics.ucsd.edu* • *Articulation agreements with California Community Colleges*	**Data/Evidence:** • *Lower-division requirements in physics, mathematics, chemistry and programming* • *Minimum of 68 units of upper-division courses in the major* • *Required upper-division courses in classical and quantum mechanics, electricity and magnetism, mathematical and computational physics, statistical and thermal physics, condensed matter, and advanced laboratory classes*	• *Committee of Undergraduate Advisors and Vice Chair for Education oversee requirements* • *Departmental Committee on Educational Policy reviews and approves any changes to curriculum, including new courses/programs* • *Vice Chair for Education acts on all requests/petitions for modification of requirements*	• *Individual course instructors, in consultation with Vice Chair for Education, use feedback to modify/improve their courses* • *The department adjusts requirements and course sequences for the major*

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Department: *Physics* **Major:** *B.A in General Physics/Secondary Education* **(1) Have formal learning outcomes been developed?** *Yes* **(6) Date of last Academic Senate Review?** *2010-2011*	*The undergraduate curriculum in Physics prepares students for graduate school in Physics, professional school (medicine, law), industry or teaching. Students graduating with a Physics degree should be able to:* • *Demonstrate proficiency with mathematics and mathematical concepts* • *Work in a wide variety of technical, academic and professional careers* • *Demonstrate knowledge of classical and quantum mechanics, thermodynamics, and laboratory skills including mechanical design and machining, thermal design and control, computer interface to scientific equipment, optics design and laboratory electronics* • *Work in a professional laboratory setting* **Learning outcomes published:** • *Course syllabi* • *www-physics.ucsd.edu* • *Articulation agreements with California Community Colleges*	**Data/Evidence:** • *Lower-division requirements in physics, mathematics, chemistry and programming* • *Minimum of 48 units of upper-division courses in the major* • *Required upper-division courses in classical and quantum mechanics, electricity and magnetism, mathematical and computational physics, statistical and thermal physics, education studies, and advanced laboratory classes*	• *Committee of Undergraduate Advisors and Vice Chair for Education oversee requirements* • *Departmental Committee on Educational Policy reviews and approves any changes to curriculum, including new courses/programs* • *Vice Chair for Education acts on all requests/petitions for modification of requirements*	• *Individual course instructors, in consultation with Vice Chair for Education, use feedback to modify/improve their courses* • *The department adjusts requirements and course sequences for the major*