UNIVERSITY OF CALIFORNIA, LOS ANGELES **UCLA**

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SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF PHYSICS AND ASTRONOMY
BOX 951547
LOS ANGELES, CA 90095-1547

TO: Professor Muriel McClendon
Chair, GE Governance Committee

FROM: Professor Ian S. McLean, Vice Chair Academic Affairs
Department of Physics & Astronomy

Dear Professor McClendon:

The physics and Astronomy department would like to request consideration in certifying the new Physics 5 series, (Physics 5A, 5B, 5C) as General Education courses. Please, note that the new series is simply a revision of our previous Physics 6H series, i.e., Physics 6AH, 6BH, 6CH. We are adopting a new textbook "*University Physics for Life Science Majors*" by Knight, Jones and Field (published by Pearson) in which the order of the principal physics topics is slightly different. Essentially, material is exchanged between the B and C parts of the series. This is an excellent new book which we believe will enhance student understanding and appreciation of physics. For this reason, we thought it best to rename and renumber the series in order to avoid confusion. We received the support of the FEC for this change.

The learning outcomes for the Physics 5 series are the same as those outlined previously for the Physics 6H or Physics 6 series in that we expect students to have mastered the fundamental principles and applications of Classical Mechanics, Energy, Motion, Thermodynamics, Fluids, Waves, Light and Optics, Electricity, Magnetism, and Modern Physics. Students should also have acquired the necessary mathematical skills associated with the above mentioned topics, such as the use of calculus, and the basic skills needed for work in a laboratory. A more general learning outcome that is often associated with physics training is the development of critical thinking, problem solving skills, the ability to retrieve and organize scientific information, and the ability to apply scientific methodology to qualitatively and quantitatively analyze a wide variety of physical phenomena.

The grading scheme will follow that of the Physics 6H and 6 series where 75% of the grade is derived from a combination of two midterms and one final exam; 15% of the grade is based on lab work; and 10% of the grade is based on homework assignments (problem solving).
If you have any questions regarding this, please do not hesitate to contact us.

Sincerely,

Ian McLean

Vice Chair for Academic Affairs
Physics & Astronomy Department

General Education Course Information Sheet

Please submit this sheet for each proposed course

Department & Course Number Physics 5A

Course Title Mechanics & Energy

Indicate if Seminar and/or Writing II course _____

1 Check the recommended GE foundation area(s) and subgroups(s) for this course

Foundations of the Arts and Humanities

- Literary and Cultural Analysis _____
- Philosophic and Linguistic Analysis _____
- Visual and Performance Arts Analysis and Practice _____

Foundations of Society and Culture

- Historical Analysis _____
- Social Analysis _____

Foundations of Scientific Inquiry

- Physical Science x
  With Laboratory or Demonstration Component must be 5 units (or more) _____
- Life Science _____
  With Laboratory or Demonstration Component must be 5 units (or more) _____

2. Briefly describe the rationale for assignment to foundation area(s) and subgroup(s) chosen.

Physics is the foundational science. 2 hours per week of lab work is added to the lecture

3. "List faculty member(s) who will serve as instructor (give academic rank):
We will offer many sections of this course each year, so a mix of our ladder faculty and instructors

Do you intend to use graduate student instructors (TAs) in this course? Yes x No ____

If yes, please indicate the number of TAs 16

4. Indicate when do you anticipate teaching this course over the next three years:

2015-16	Fall		Winter		Spring		
	Enrollment		Enrollment		Enrollment		
2016-17	Fall		Winter		Spring		
	Enrollment		Enrollment		Enrollment		
2017-18	Fall	x	Winter	x	Spring	x	
	Enrollment	About 800	Enrollment	About 600	Enrollment	About 400	

5. GE Course Units

Is this an ***existing*** course that has been modified for inclusion in the new GE? Yes ____ No x

If yes, provide a brief explanation of what has changed. Revision of an existing course which already was a GE course

Present Number of Units: 5 Proposed Number of Units: 5

6. Please present concise arguments for the GE principles applicable to this course.

xGeneral Knowledge	Applications of the scientific method and how the world works in detail. Physics 5A covers fundamental principles and applications of classical mechanics and energy. It also enables students to acquire the basic skills needed for laboratory work, such as the understanding and use of modern instrumentation and computers.
xIntegrative Learning	Students have to use the mathematics they have learned and apply it to solve physics problems. Mathematics is the language or mode of expression in physics.
❑ Ethical Implications	
❑ Cultural Diversity	
xCritical Thinking	The course develops the students' critical scientific thinking. There are typically several ways to approach any physics problem. Students must learn to exercise judgement in selecting the most accurate and revealing method.
❑ Rhetorical Effectiveness	
xProblem-solving	Students have to learn first how to conceptualize any given problem in terms of the relevant parameters. Then, they have to quantify those parameters and finally use established relationships between those quantities in the most direct manner to draw inferences, i.e., to find the solution to the given problem.
❑ Library & Information Literacy	

(A) STUDENT CONTACT PER WEEK (if not applicable write N/A)

1.	Lecture:	**3**	(hours)
2.	Discussion Section:	**1**	(hours)
3.	Labs:	**2**	(hours)
4.	Experiential (service learning, internships, other):		(hours)
5.	Field Trips:		(hours)

(A) TOTAL Student Contact Per Week **6** **(HOURS)**

(B) OUT-OF-CLASS HOURS PER WEEK (if not applicable write N/A)

1.	General Review & Preparation:	**2**	(hours)
2.	Reading	**3**	(hours)
3.	Group Projects:		(hours)
4.	Preparation for Quizzes & Exams:	**3**	(hours)
5.	Information Literacy Exercises:		(hours)
6.	Written Assignments:	**3**	(hours)
7.	Research Activity:		(hours)

(B) TOTAL Out-of-class time per week	**11**	**(HOURS)**
GRAND TOTAL (A) + (B) must equal at least 15 hours/week	17	**(HOURS)**

General Education Course Information Sheet

Please submit this sheet for each proposed course

Department & Course Number Physics 5B

Course Title Thermodynamics, Fluids, Waves, Light, and Optics

Indicate if Seminar and/or Writing II course _____

1 Check the recommended GE foundation area(s) and subgroups(s) for this course

Foundations of the Arts and Humanities

- Literary and Cultural Analysis _____
- Philosophic and Linguistic Analysis _____
- Visual and Performance Arts Analysis and Practice _____

Foundations of Society and Culture

- Historical Analysis _____
- Social Analysis _____

Foundations of Scientific Inquiry

- Physical Science x
  With Laboratory or Demonstration Component must be 5 units (or more) _____
- Life Science _____
  With Laboratory or Demonstration Component must be 5 units (or more) _____

2. Briefly describe the rationale for assignment to foundation area(s) and subgroup(s) chosen.

Physics is the foundational science. 2 hours per week of lab work is added to the lecture

3. "List faculty member(s) who will serve as instructor (give academic rank):
We will offer many sections of this course each year, so a mix of our ladder faculty and instructors

Do you intend to use graduate student instructors (TAs) in this course? Yes x No ____

If yes, please indicate the number of TAs 16

4. Indicate when do you anticipate teaching this course over the next three years:

2015-16	Fall		Winter		Spring	
	Enrollment		Enrollment		Enrollment	
2016-17	Fall		Winter		Spring	
	Enrollment		Enrollment		Enrollment	
2017-18	Fall		Winter		Spring	
	Enrollment		Enrollment	About 800	Enrollment	About 600

5. GE Course Units

Is this an ***existing*** course that has been modified for inclusion in the new GE? Yes ____ No x

If yes, provide a brief explanation of what has changed. Revision of an existing course which already was a GE course

Present Number of Units: _____ Proposed Number of Units: 5

6. Please present concise arguments for the GE principles applicable to this course.

xGeneral Knowledge	Applications of the scientific method and how the world works in detail. Physics 5B covers fundamental principles and applications of Thermodynamics, Fluids, Waves, light and Optics. It also enables students to acquire the basic skills needed for laboratory work, such as the understanding and use of modern instrumentation and computers.
xIntegrative Learning	Students have to use the mathematics they have learned and apply it to solve physics problems. Mathematics is the language or mode of expression in physics
❑ Ethical Implications	
❑ Cultural Diversity	
xCritical Thinking	The course develops the students' critical scientific thinking. There are typically several ways to approach any physics problem. Students must learn to exercise judgement in selecting the most accurate and revealing method.
❑ Rhetorical Effectiveness	
xProblem-solving	Students have to learn first how to conceptualize any given problem in terms of the relevant parameters. Then, they have to quantify those parameters and finally use established relationships between those quantities in the most direct manner to draw inferences, i.e., to find the solution to the given problem.
❑ Library & Information Literacy	

(A) STUDENT CONTACT PER WEEK (if not applicable write N/A)

1.	Lecture:	**3**	(hours)
2.	Discussion Section:	**1**	(hours)
3.	Labs:	**2**	(hours)
4.	Experiential (service learning, internships, other):		(hours)
5.	Field Trips:		(hours)

(A) TOTAL Student Contact Per Week **6** **(HOURS)**

(B) OUT-OF-CLASS HOURS PER WEEK (if not applicable write N/A)

1.	General Review & Preparation:	**2**	(hours)
2.	Reading	**3**	(hours)
3.	Group Projects:		(hours)
4.	Preparation for Quizzes & Exams:	**3**	(hours)
5.	Information Literacy Exercises:		(hours)
6.	Written Assignments:	**3**	(hours)

7. Research Activity:	_____	(hours)
(B) TOTAL Out-of-class time per week	**11**	**(HOURS)**
GRAND TOTAL (A) + (B) must equal at least 15 hours/week	17	**(HOURS)**

General Education Course Information Sheet

Please submit this sheet for each proposed course

Department & Course Number Physics 5C

Course Title Physics for Life Science Majors: Electricity, Magnetism, and Modern Optics

Indicate if Seminar and/or Writing II course _____

1 Check the recommended GE foundation area(s) and subgroups(s) for this course

Foundations of the Arts and Humanities

- Literary and Cultural Analysis _____
- Philosophic and Linguistic Analysis _____
- Visual and Performance Arts Analysis and Practice _____

Foundations of Society and Culture

- Historical Analysis _____
- Social Analysis _____

Foundations of Scientific Inquiry

- Physical Science x
  With Laboratory or Demonstration Component must be 5 units (or more) _____
- Life Science _____
  With Laboratory or Demonstration Component must be 5 units (or more) _____

2. Briefly describe the rationale for assignment to foundation area(s) and subgroup(s) chosen.

Physics is the foundational science. 2 hours per week is added to the lecture

3. "List faculty member(s) who will serve as instructor (give academic rank):
We will offer many sections of this course each year, so a mix of our ladder faculty and instructors

Do you intend to use graduate student instructors (TAs) in this course? Yes x No ____

If yes, please indicate the number of TAs 16

4. Indicate when do you anticipate teaching this course over the next three years:

2015-16	Fall		Winter		Spring	
	Enrollment		Enrollment		Enrollment	
2016-17	Fall		Winter		Spring	
	Enrollment		Enrollment		Enrollment	
2017-18	Fall		Winter		Spring	
	Enrollment		Enrollment		Enrollment	800

5. GE Course Units

Is this an ***existing*** course that has been modified for inclusion in the new GE? Yes ____ No x

If yes, provide a brief explanation of what has changed. Revision of an existing course which already was a GE course

Present Number of Units: _____ Proposed Number of Units: 5

6. Please present concise arguments for the GE principles applicable to this course.

xGeneral Knowledge	Applications of the scientific method and how the world works in detail. Physics 5C covers fundamental principles and applications of Electricity, Magnetism, and Modern Optics. It also enables students to acquire the basic skills needed for laboratory work, such as the understanding and use of modern instrumentation and computers.
xIntegrative Learning	Students have to use the mathematics they have learned and apply it to solve physics problems. Mathematics is the language or mode of expression in physics.
❑ Ethical Implications	
❑ Cultural Diversity	
xCritical Thinking	The course develops the students' critical scientific thinking. There are typically several ways to approach any physics problem. Students must learn to exercise judgement in selecting the most accurate and revealing method.
❑ Rhetorical Effectiveness	
xProblem-solving	Students have to learn first how to conceptualize any given problem in terms of the relevant parameters. Then, they have to quantify those parameters and finally use established relationships between those quantities in the most direct manner to draw inferences, i.e., to find the solution to the given problem.
❑ Library & Information Literacy	

(A) STUDENT CONTACT PER WEEK (if not applicable write N/A)

1.	Lecture:	**3**	(hours)
2.	Discussion Section:	**1**	(hours)
3.	Labs:	**2**	(hours)
4.	Experiential (service learning, internships, other):		(hours)
5.	Field Trips:		(hours)

(A) TOTAL Student Contact Per Week **6** **(HOURS)**

(B) OUT-OF-CLASS HOURS PER WEEK (if not applicable write N/A)

1.	General Review & Preparation:	**3**	(hours)
2.	Reading	**2**	(hours)
3.	Group Projects:		(hours)
4.	Preparation for Quizzes & Exams:	**3**	(hours)
5.	Information Literacy Exercises:		(hours)
6.	Written Assignments:	**3**	(hours)
7.	Research Activity:		(hours)

(B) TOTAL Out-of-class time per week	**11**	**(HOURS)**
GRAND TOTAL (A) + (B) must equal at least 15 hours/week	17	**(HOURS)**

Course	Week	Part	Chapter	Page	#Pages	Importance	#Hour Knight	#Hour by us	Textbook Topics	Possible Current Labs	Importance	Bio Applications + Lab introduction
5A												
	1	*Orientation*					0	1	Relation with Math, Chemistry and Biology			Physical origin and principle of life
		I Force and Motion										
			1	2	28	1	2	2	Representing motion - Velociy, Vectors	6A1 Heart Rate	2	Motion of animals
	2		2	30	37	1	3	3	Motion in one dimension - Acceleration	6A2 Kinematics	1	Coherent and random motions
	3		3	67	35	2	2	2	Vectors and motion in two dimensions			Motions in sports
		MT1						***8***				
	4		4	102	29	1	2	2	Forces and Newton's law of motion - Free body diagram			
	5		5	131	34	1	4	4	Applying Newton's laws - Equibrium, Friction…	6A3 Newton's Law	1	Muscular System
	6		6	174	34	2	3	3	Circular Motion, Orbits, and Gravity	6A7 Rotation	3	
			7	200	32	3	2	1	Rotational motion - Torque			
		MT2						***10***				
	7		8	232	28	2	2	2	Equilibrium and Elasticity - Stability and balance	6A6 Biceps Muscle Model	1	
		II Conservation Laws										
	8		9	260	29	2	2	2	Momentum - Impulse, collisions	6A5 Momentum and Impulse	2	
	9		10	289	33	1	3	3	Energy and Work - Kinetic energy, Potential energy	6A4 Conservation of Energy	1	Solar energy
	10	*Review of 5A*					0	1				
		FINAL						***8***				
5B												
	1	*Review of Energy*					0	1				
			11	322	39	1	3	3	Using Energy - Thermal energy, Heat, Entropy			Life as an open system
		III Properies of Matter										
	2		12	361	44	1	3	3	Thermal properties of matter - Atomic model, Diffusion			Chemical process
	3		13	405	39	1	2	3	Fluids - Pressure, Bernoulli's equation	6C5 Fluids and Thermodynamics	1	Heart and Blood circulation, Birds, Fishes
		MT1						***10***				
		IV Oscillations and Waves										
	4		14	444	32	1	2	2	Oscillations - Harmonic motion	6B1 Harmonic Oscillator	1	
	5		15	476	32	1	2	2	Traveling waves and sound - Voice, Hearing			Voice and hearing, Ultra sound imaging
	6		16	508	36	2	3	3	Superposition and standing wave - Music insttruments	6B2 Standing Waves	1	Music and instruments
		MT2						***7***				
		V Optics										
	7		17	544	30	1	3	3	Wave Optics - Interference, Diffraction	6C2 Microwave Optics	2	Diffraction (DNA discovery)
	8		18	574	35	1	3	3	Ray Optics - Reflection, Refraction	6C3 Geometrical Optics	1	Vision and eyes
	9		19	609	33	1	2	2	Optical Instruments - Human eye, Microscope	6C4 Physical Optics	1	Optical Microscopes
	10	*Review of 5B*					0	1				
		FINAL						***9***				
5C												
		VI Electricity and Magnetism										
	1		20	642	33	1	3	3	Electric fields and forces - Coulomb's law	6B3 Electric Statics	1	Molecular structure
	2		21	675	37	1	3	3	Electric Potential - Capacitor, electric energy	6B4 Van der Graff	1	Membrane potential
	3		22	712	27	1	2	2	Current and Resistance - Ohm's law, Energy and power			
		MT1						***8***				
	4		23	739	37	1	3	3	Circuits - Kirchhoff's laws, Nervous system	6B5 Electric Circuits	1	Brain and neural networks
	5		24	776	40	1	3	3	Magnetic fields and forces - Origin of magnetic fields	6B6 Charge to Mass Ratio	2	MRI, Mass spectrometer
	6		25	816	36	2	3	**3**	EM Induction and EM waves - Faraday's law, EM spectrum	6C1 Coil and Faraday's Law	1	Power Plants, Vision
	7		26	852	34	3	2	1	AC electricity			Electric devices (Camera, TV, Computer…)
		MT2						***10***				
		VII Modern Physics										
	8		28	922	32	2	3	2	Quantum physics - X rays, Quantized energy levels	6C6 Photoelectric Effect	3	X-ray diffraction, Electron microscopes
	9		29	954	37	1	3	3	Atoms and molecules - Spectroscopy, Molecules			Molecular bonding and structure, Laser

Course	Week	Part	Chapter	Page	#Pages	Importance	#Hour Knight	#Hour by us	Textbook Topics	Possible Current Labs	Importance	Bio Applications + Lab introduction
	10		30	991	36	2	3	2	Nuclear physics - Radioactivity, Medical applications	6C7 Radioactivity	1	Medical Imaging
			Review of 5C				0	1				
			FINAL					***8***				

Course Revision Proposal

	Physics 5A Physics for Life Sciences Majors: Mechanics and Energy	
	Requested revisions that apply:	
	☑ Renumbering ☑ Title ☐ Format ☑ Requisites ☐ Units ☐ Grading ☑ Description	
	Multiple Listing: ☐ Add New ☐ Change Number ☐ Delete	
	Concurrent Listing: ☐ Add New ☐ Change Number ☐ Delete	
	CURRENT	PROPOSED
Course Number	Physics 6AH	Physics 5A
Title	Physics for Life Sciences Majors: Statics and Dynamics (Honors)	Physics for Life Sciences Majors: Mechanics and Energy
Short Title	STATICS & DYNAMICS	MECHANICS & ENERGY
Units	Fixed: 5	Fixed: 5
Grading Basis	Letter grade or Passed/Not Passed	Letter grade or Passed/Not Passed
Instructional Format	Primary Format Lecture	Primary Format Lecture - 3 hours per week
	Secondary Format Discussion	Secondary Format Discussion - 1 hours per week
	Secondary Format Laboratory	Secondary Format Laboratory - 2 hours per week
TIE Code	LECS - Lecture (Plus Supplementary Activity) [T]	LECS - Lecture (Plus Supplementary Activity) [T]
GE	No	Yes
Requisites	Math 3A and 3B and 3C (corequisite)	LS 30A and LS 30B or Math 3A and 3B and 3C (corequisite)
Description	Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Mathematics 3A, 3B. Enforced corequisite: Mathematics 3C. Not open for credit to students with credit for course 6A. Statics and dynamics of forces, energy, and momentum, with applications to biological and biochemical systems. Physics of states of matter (solids, liquids, and gases) and of surfaces and interfaces as they apply to biological organisms. P/NP or letter grading.	Lecture, three hours; discussion, one hour; laboratory, two hours. Requisites: Life Sciences 30A, 30B, or Mathematics 3A, 3B, 3C (3C may be taken concurrently). Statics and dynamics of forces, motion, energy, including thermal energy, with applications to biological and biochemical systems. P/NP or letter grading.

Justification		The Physics 6H series was an early attempt at producing a series better able to accommodate the needs of Life Science students. The department is now proposing the 5 series which closely resembles the 6H series since it contains essentially the same physics and has the same structure with the same applications to biological and biochemical systems but with better integration with a new textbook. This new 5 series will be the main series offered to the Life Science majors at UCLA.
Syllabus		File *Copy of Physics 5 Course + Lab Outline 2017 Feb V12.xlsx* was previously uploaded. You may view the file by clicking on the file name.
Supplemental Information		This revision has been approved by the department's Academic Vice Chair, Professor Ian McLean
Effective Date	Fall 2002	Fall 2017
Department	Physics & Astronomy	Physics & Astronomy
Contact		Name FRANCOISE QUEVAL
Routing Help		E-mail queval@physics.ucla.edu

ROUTING STATUS	
Role:	Registrar's Office
Status:	Processing Completed

Role:	Registrar's Publications Office - Livesay, Blake Cary (BLIVESAY@REGISTRAR.UCLA.EDU) - 61590
Status:	Added to SRS on 5/9/2017 2:31:30 PM
Changes:	TIE Code, Description
Comments:	Course description edited into official version.

Role:	Registrar's Scheduling Office - Lin, Jessica (JLIN@REGISTRAR.UCLA.EDU) - 58253
Status:	Added to SRS on 5/8/2017 4:57:16 PM
Changes:	TIE Code
Comments:	reqs: (LS 30A and LS 30B) or [(Math 3A and 3B), and 3C (req/coreq)]

Role:	FEC School Coordinator - Kikuchi, Myrna Dee Castillo (MKIKUCHI@COLLEGE.UCLA.EDU) - 45040
Status:	Approved on 5/8/2017 12:29:41 PM

Changes:	TIE Code
Comments:	Approved by College FEC Chair, Joe Bristow. Routing to Doug Thomson in the Registrar's Office.

Role:	Department/School Coordinator - Queval, Francoise A (QUEVAL@PHYSICS.UCLA.EDU) - 52453
Status:	Approved on 4/26/2017 3:36:27 PM
Changes:	Short Title, TIE Code, Supplemental Info
Comments:	Changed the short title of the course and noted Professor McLean's approval.

Role:	FEC School Coordinator - Kikuchi, Myrna Dee Castillo (MKIKUCHI@COLLEGE.UCLA.EDU) - 45040
Status:	Returned for Additional Info on 4/26/2017 3:33:35 PM
Changes:	TIE Code
Comments:	Routing to Francoise. Please see e-mail.

Role:	Initiator/Submitter - Queval, Francoise A (QUEVAL@PHYSICS.UCLA.EDU) - 52453
Status:	Submitted on 4/21/2017 11:03:49 AM
Comments:	Initiated a Course Revision Proposal

Course Revision Proposal

	Physics 5B Physics for Life Sciences Majors: Thermodynamics, Fluids, Waves, Light and Optics	
	Requested revisions that apply:	
	☑ Renumbering ☑ Title ☐ Format ☑ Requisites ☐ Units ☐ Grading ☐ Description	
	Multiple Listing: ☐ Add New ☐ Change Number ☐ Delete	
	Concurrent Listing: ☐ Add New ☐ Change Number ☐ Delete	
	CURRENT	PROPOSED
Course Number	Physics 6BH	Physics 5B
Title	Physics for Life Sciences Majors: Sound, Light, and Hydrodynamics (Honors)	Physics for Life Sciences Majors: Thermodynamics, Fluids, Waves, Light and Optics
Short Title	SOUND&LIGHT&HYDRDYN	THERMODYNAMICS&WAVE
Units	Fixed: 5	Fixed: 5
Grading Basis	Letter grade or Passed/Not Passed	Letter grade or Passed/Not Passed
Instructional Format	Primary Format Lecture	Primary Format Lecture - 3 hours per week
	Secondary Format Discussion	Secondary Format Discussion - 1 hours per week
	Secondary Format Laboratory	Secondary Format Laboratory - 1 hours per week
TIE Code	LECS - Lecture (Plus Supplementary Activity) [T]	LECS - Lecture (Plus Supplementary Activity) [T]
GE	No	Yes
Requisites	course 6AH	LS 30A and LS 30B or Math 3A, 3B, 3C; Physics 5A.
Description	Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6A or 6AH. Not open for credit to students with credit for course 6B. Sound and electromagnetic waves, interference, diffraction, radioactivity, and hydrodynamics, with applications to biological and biochemical systems. P/NP or letter grading.	Lecture, three hours; discussion, one hour; laboratory, two hours. Requisite: course 5A. Thermal properties of matter, free energy, fluids, ideal gas, diffusion, oscillations, waves, sounds, light, and optics, with applications to biological and biochemical systems. P/NP or letter grading.

Justification		The Physics 6H series was an early attempt at producing a series better able to accommodate the needs of Life Science students. The department is now proposing the 5 series which closely resembles the 6H series since it contains essentially the same physics and has the same structure with the same applications to biological and biochemical systems but with better integration with a new textbook. From now on, this new 5 series will be the main series offered to the Life Science majors at UCLA.
Syllabus		File *Copy of Physics 5 Course + Lab Outline 2017 Feb V12.xlsx* was previously uploaded. You may view the file by clicking on the file name.
Supplemental Information		This revision has been approved by the department's Academic Vice Chair, Professor Ian McLean.
Effective Date	Winter 2003	Fall 2017
Department	Physics & Astronomy	Physics & Astronomy
Contact		Name FRANCOISE QUEVAL
Routing Help		E-mail queval@physics.ucla.edu

ROUTING STATUS

Role:	Registrar's Office
Status:	Processing Completed

Role:	Registrar's Publications Office - Livesay, Blake Cary (BLIVESAY@REGISTRAR.UCLA.EDU) - 61590
Status:	Added to SRS on 5/9/2017 2:37:54 PM
Changes:	TIE Code, Description
Comments:	Course description edited into official version.

Role:	Registrar's Scheduling Office - Lin, Jessica (JLIN@REGISTRAR.UCLA.EDU) - 58253
Status:	Added to SRS on 5/8/2017 2:52:31 PM
Changes:	TIE Code
Comments:	No Comments

Role:	FEC School Coordinator - Kikuchi, Myrna Dee Castillo (MKIKUCHI@COLLEGE.UCLA.EDU) - 45040
Status:	Approved on 5/8/2017 12:31:27 PM
Changes:	TIE Code, Effective Date
Comments:	Chair approval indicated in justification. Approved by College FEC Chair, Joe Bristow. Routing to Doug Thomson in the Registrar's Office.

Role:	Initiator/Submitter - Queval, Francoise A (QUEVAL@PHYSICS.UCLA.EDU) - 52453
Status:	Submitted on 4/26/2017 3:38:45 PM
Comments:	Initiated a Course Revision Proposal

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Comments or questions? Contact the Registrar's Office at
cims@registrar.ucla.edu or (310) 825-6704

Course Revision Proposal

	Physics 5C Physics for Life Sciences Majors: Electricity, Magnetism, and Modern Physics	
	Requested revisions that apply:	
	☑Renumbering ☑Title ☐Format ☑Requisites ☐Units ☐Grading ☑Description	
	Multiple Listing: ☐Add New ☐Change Number ☐Delete	
	Concurrent Listing: ☐Add New ☐Change Number ☐Delete	
	CURRENT	PROPOSED
Course Number	Physics 6CH	Physics 5C
Title	Physics for Life Sciences Majors: Electricity, Magnetism, and Transport (Honors)	Physics for Life Sciences Majors: Electricity, Magnetism, and Modern Physics
Short Title	ELCTRC&MAGNT&TRNSPT	E&M & MODERNPHYSICS
Units	Fixed: 5	Fixed: 5
Grading Basis	Letter grade or Passed/Not Passed	Letter grade or Passed/Not Passed
Instructional Format	Primary Format Lecture	Primary Format Lecture - 3 hours per week
	Secondary Format Discussion	Secondary Format Discussion - 1 hours per week
	Secondary Format Laboratory	Secondary Format Laboratory - 2 hours per week
TIE Code	LECS - Lecture (Plus Supplementary Activity) [T]	LECS - Lecture (Plus Supplementary Activity) [T]
GE	No	No
Requisites	course 6BH	LS 30A and LS 30B or Math 3A, 3b and 3C; Physics 5A.
Description	Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6BH. Not open for credit to students with credit for course 6C. Electrostatics in vacuum and in water. Electric current with applications to electrophysiology. Magnetism, especially NMR. Diffusion and heat flow, with applications to biological and biochemical systems. P/NP or letter	Lecture, three hours; discussion, one hour; laboratory, two hours. Requisite: course 5A. Electrostatics in vacuum and in water. Electricity, circuits, magnetism, quantum, atomic and nuclear physics, radioactivity, with applications to biological and biochemical systems. P/NP or letter grading.

	grading.	
Justification		The Physics 6H series was an early attempt at producing a series better able to accommodate the needs of Life Science students. The department is now proposing the 5 series which closely resembles the 6H series since it contains essentially the same physics and has the same structure with the same applications to biological and biochemical systems but with better integration with a new textbook. This new 5 series will be the main series offered to the Life Science majors at UCLA.
Syllabus		File *Copy of Physics 5 Course + Lab Outline 2017 Feb V12.xlsx* was previously uploaded. You may view the file by clicking on the file name.
Supplemental Information		This revision has been approved by our department's Vice Chair for Academic Affairs, Professor Ian McLean.
Effective Date	Fall 2002	Fall 2017
Department	Physics & Astronomy	Physics & Astronomy
Contact		Name FRANCOISE QUEVAL
Routing Help		E-mail queval@physics.ucla.edu

ROUTING STATUS

Role:	Registrar's Office
Status:	Processing Completed

Role:	Registrar's Publications Office - Livesay, Blake Cary (BLIVESAY@REGISTRAR.UCLA.EDU) - 61590
Status:	Added to SRS on 5/9/2017 2:45:07 PM
Changes:	TIE Code, Description
Comments:	Course description edited into official version.

Role:	Registrar's Scheduling Office - Lin, Jessica (JLIN@REGISTRAR.UCLA.EDU) - 58253
Status:	Added to SRS on 5/8/2017 4:58:33 PM
Changes:	TIE Code
Comments:	No Comments

Role:	FEC School Coordinator - Kikuchi, Myrna Dee Castillo (MKIKUCHI@COLLEGE.UCLA.EDU) - 45040
Status:	Approved on 5/8/2017 12:32:01 PM
Changes:	TIE Code, Effective Date

Comments:	Chair approval indicated in justification. Approved by College FEC Chair, Joe Bristow. Routing to Doug Thomson in the Registrar's Office.

Role:	Initiator/Submitter - Queval, Francoise A (QUEVAL@PHYSICS.UCLA.EDU) - 52453
Status:	Submitted on 4/26/2017 3:40:45 PM
Comments:	Initiated a Course Revision Proposal

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cims@registrar.ucla.edu or (310) 825-6704