FAU

FLORIDA ATLANTIC UNIVERSITY

COURSE CHANGE REQUEST
Graduate Programs

UGPC Approval _____	
UFS Approval _____	
SCNS Submittal _____	
Confirmed _____	
Banner Posted _____	
Catalog _____	

Department Physics

College Charles E. Schmidt College of Science

***Current* Course Prefix and Number**	PHY 6346	***Current* Course Title** Electromagnetism

Syllabus must be attached for ANY changes to current course details. See Guidelines. Please consult and list departments that may be affected by the changes; attach documentation.
(none)

Change title to:

Change prefix

From: To:

Change course number

From: To:

Change credits*

From: 4   To: 3

Change grading

From: To:

*Review Provost Memorandum

Change description to:

Change prerequisites/minimum grades to:
(none)

Change corequisites to:

Change registration controls to:

Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade.

Effective Term/Year for Changes: Fall 2019	**Terminate course? Effective Term/Year for Termination:**

Faculty Contact/Email/Phone   Chris Beetle <cbeetle@fau.edu> 7-4612

Approved by		**Date**
Department Chair	_____	3/12/19
College Curriculum Chair	_____	3/12/19
College Dean	_____ Bob Stackman 2019.03.12 09:25:20 -05'00'	
UGPC Chair	_____	3/27/2019
UGC Chair	_____	3/27/19
Graduate College Dean	_____ Khaled Sobhan	3/27/2019
UFS President	_____	
Provost	_____	

Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting.

GRADUATE COLLEGE

MAR 1 2 2019

Received

FLORIDA ATLANTIC UNIVERSITY
Department of Physics

Syllabus of PHY6346 (14167)   *Electromagnetism*   *Fall 2019*

Course Descriptions: *Boundary-value problems in electrostatics, magnetostatics and steady currents; it looks at multipoles, dielectrics, Maxwell's equations, and energy and momentum of the electromagnetic field.*

Objective: *This course aims at thorough understanding of classical electrodynamics and mathematical skills in solving complicated problems (with low symmetry) in electrodynamics.*

Course credit: *3*

Credit hours: *3 hours in-class lecture each week, total 45 hours in-class in Fall semester.*

It takes a student an average of 6 hours of out-of-class assignment (reading and homework) each week for 15 weeks in Fall semester for 3 credits.

Prerequisite: *none*

Time: *T and R 10:00 -11:50 AM*

Classroom: *SE 319A*

Instructor: *Dr. Shen Li Qiu*
Office: Room 102 Science/Engineering Bldg.
E-mail: qiu@fau.edu, Website: www.fau.edu/~qiu

Office Hours: *T R   2:00 - 3:00 PM*

Textbook: *Classical Electrodynamics*
By John David Jackson (3rd edition)

Required readings: *"Classical Electrodynamics" chapters 1 to 4.*

Tests:

Test I	R	Sept. 7	(Ch. 0)
Test II	T	Oct. 10	(Ch. 1, 2)
Test III	T	Nov. 7	(Ch. 3)
Test IV	R	Dec. 7	(Ch. 4)

Makeup policy: *No makeup is allowed unless you have a written document such as a letter from your doctor showing that you are unable to come to the class for taking test. No makeup for Test 4 in any case.*

Final grade: *Tests will be graded in a 100 point scale. Final grade will be determined by the average of the 4 tests relative to the average of the class.*

Homework: *I will collect any homework that you hand in. The homework problems will help you prepare for the exams. If you are a borderline student at the end of the course, then a good grade in homework will increase your chances of the better final grade.*

Attendance policy statement: *Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance.*

Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University- approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical

performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Disability policy statement: *In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.*

Counseling and Psychological Services (CAPS) Center: *Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/.*

Code of Academic Integrity policy statement: *Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001.*

Lecture schedule and homework assignments

Week	Lecture	Homework J: Jackson's homework A: additional homework
1	Vector algebra, Differential calculus, Integral calculus,	A0.1 to A0.10
2	Curvilinear Coordinates, Delta and Theta Functions,	A0.11 to A0.17
3	$\vec{F}_E$, $\nabla \cdot \vec{E}$ & $\nabla \times \vec{E}$, Φ_E & $\Delta\Phi_E$, W_E of Q; Test 1	J1.1 to J1.7; A1.1 to A1.5
4	U_E of $\vec{E}$ – field, Discontinuity, Poisson equation	J1.8 to J1.15; A1.6 to A1.8
5	Method of image, Separation of variables in Cartesian coordinates	J2.1, J2.2, J2.3, J2.4, J2.5, J2.10,, J2.11, A2.1, A2.3
6	Separation of variables in Cylindrical coordinates (2-D)	J2.13, J2.23, A2.4, A2.5, A2.6, A2.8, A2.9, A2.11
7	Solution to Poisson equation using Green function for ∇^2	J2.7, J2.12, J2.13, A2.10, A2.12, A2.13,

8	Test 2; Separation of variables for Laplace's equation in spherical coordinates 2-D case	A3.1, A3.2, A3.3, A3.4
9	Spring Break	
10	Separation of variables for Laplace's equation in spherical coordinates 3-D cases; Addition theorem for spherical harmonics	J3.1, J3.2, J3.3, J3.4, J3.6, J3.7,
11	Separation of variables for Laplace's equation in cylindrical coordinates	J3.9, J3.10, J3.12,
12	Expansion of $G(\vec{r},\vec{r}')$ in orthogonal functions Test 3	J3.14, J3.17, J3.22, J3.23, J3.24, A3.5, A3.6, A3.7
13	Multiple expansion of the potential due to a localized charge distribution	J4.1, J4.7, A4.1, A4.3, A4.4
14	Multiple expansion of the energy of a charge distribution in an external field	J4.2, J4.5, J4.6, A4.5, A4.11
15	Electrostatic field in matter, Electrostatic energy in dielectric media	J4.10, J4.13, A4.2, A4.10
16	Boundary-value problem; Test 4.	J4.8, J4.9, A4.6, A4.7, A4.8, A4.9, A4.12, A4.13

Homework assignment and **answer keys** to the assigned homework problems are posted on my website
www.fau.edu/~qiu