PHY390
OpticsandModernPhysics
DillardUniversity–Spring2004

MeetingTimes:
STERN219   MWF4:00p–4:50p

Instructor: **RobSalgado** Office: **Stern307A** Voice: **(504)-816-4510**	E-mail: **rsalgado@dillard.edu** Instant-Messengers:AOL,MSN,Yahoo: **dillardphysics**(do *not*emailhere)	Officehours: **-tobeannounced**

CatalogDescription:
PHY390OpticsandModernPhysics(3credits)
Reviewofgeometricandphysicaloptics;opticalan   alysisoftypicalsystems,theexperimentalfoundat   ionsofquantum
physics,Schrodingerequationsandthewavefunctio   ns.Atomicandmolecularspectra,specialrelativit   y,electricityand
radiation,introductorynuclearphysics.Classmeet   sthreehoursperweekforlecture.
[Prerequisite:PHY230(GeneralPhysicsIII)andj   uniorstanding,MAT203(AnalyticGeometryandCalc   ulusIII).]

RequiredTextbooks:
"PhysicsforScientistsandEngineers"(5thedition   )byRaymondA.SerwayandRobertJ.Beichner
(publishedbyBrooks/Cole:ISBN:0-03-031716-9)
"ModernPhysics"(2ndedition)bySerway,Moses,a   ndMoyer (publishedbyBrooks/Cole:ISBN0-03-001547-2)
(Optional)Highly-recommendedsupplement:
"Schaum'sOutlineofPreparatoryPhysicsII:Electr   icityandMagnetism,Optics,ModernPhysics"
byErichErlbach(Preface),AlvinM.Halpern(Prefa   ce)(publishedbyMcGraw-Hill:ISBN0-07-025707-8)

ElectronicMaterials:
Iwillmaintainawebsite(fornow: `http://physics.syr.edu/~salgado/390/`)thatliststheassignedproblems
andsolutions.Iwillalsotrytomakeavailablet   hewhiteboard/PowerPointnotesandanycomputersou   rcecode
(e.g.,Python,Maple)thatIuseforsimulationsor   computations.

Homework:
Homeworkwillbeassignedbutwillnotbecollected   .Wewilldiscuss *some*homeworkinclass.Otherdiscussionsfor
homeworkoccurduringOfficeHoursintheLearning   Center.Examandquizproblemsaregenerallybased   onhomework
problems,textbookproblems,andtextbookexamples.
Mostofthelearningyoudointhiscourseisdone   bydoinghomeworkproblemsoutsideofclass!
Youareencouragedtoworkonthehomeworkwithoth   erstudents.
However,besurethatyoucandotheproblems   *byyourself* sinceyou'llbeworkingonquizzesandexams   *byyourself* .
Ifyouneedhelpwithyourhomework,pleasevisitm   e(withyourtextbookandyournotebookandwithpr   oofthatyouhave
triedtheproblems)duringOfficeHours…thesooner   thebetter.

ClassroomRules:
Cometoclass **ONTIME** .Attendanceis **REQUIRED.**
"TheUniversityrecognizesthatastudentmaymiss   aclassforlegitimatereasons.Insuchcasesthese   absencesareexcusable;
however,thestudentmustcompletetheStudentAbse   nceForm."…
"Aprofessormaydropastudentwith3ormoreunex   cusedabsencesfromacourse." (2003-2005UniversityCatalog,page15)
Notethatyourattendanceisrecordedontheoffici   almidtermandfinalgradesheets   .
"Academicdishonestywillnotbetolerated." (2003-2005UniversityCatalog,page15)
CometoclassPREPAREDandEQUIPPED,havingreador   writtenanyassignments.
LimitalldiscussionstothePHYSICStopicunderdi   scussion.
TurnOFF allphones,pagers,radios,andotherdisruptived   evices.
TreateachotherwithRESPECT.

Grades(forthelectureportion):
20%5-minuteQUIZZES(FORMAT:multiple-choicequestions,ashortproblem,andvo   cabularydefinitionsforthe *next*chapterorsection)
30%EXAMS(FORMAT:conceptualandcomputationalmultiple-choicequest   ions,twoorthreeshortproblems)
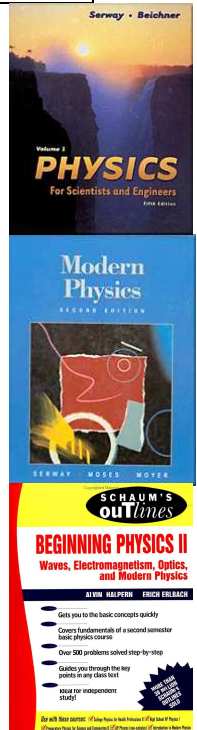20%MIDTERMEXAM(FORMAT:conceptualandcomputationalmultiple-choicequest   ions,twoorthreeshortproblems)
30%FINALEXAM(FORMAT: liketworegularexamsbutcumulative)
A$\geq$88%,B $\geq$76%,C $\geq$64%,D $\geq$50%,F<50%.Thisclassisnotgradedonacurve.
Borderlinecases(betweentwolettergrades):Ifyo   urexamsshowanupwardtrend,yourgrademaybenu   dgedupwards.

ExamsandQuizzes:QUIZZESare *not* announced.Theywillbeginatthestartoftheclas   speriodandwillendpromptlyafterfiveminutes   of
thatperiod.[Nomakeupsorextensions.Thiswillb   estrictlyenforced.Beontime.]Aftereverytwoo   rthreechapters,wewillhavean
EXAMonthesechapters.Thereisacumulativeone-h   our *in-class*MIDTERMandacumulativetwo-hour   *in-classFINAL* .

Missedexamsandquizzes:Thereare **no**makeupexamsorquizzes.Thereare **no**exceptions.
    Ifyouareabsentforanexamorquiz, *withinoneweek* ,youmustpresenttomeawrittenexcusefromAcad   emicAffairs.
    Onlyif thatexcuseisvalid, **yourfinalexamwillcarrytheweightofyourmisse   dexamorquiz** .
    Otherwise,youwillgetnocreditforthemissedex   amorquiz.

Datesofwhichyoushouldbeaware:
    MartinLutherKing,Jr.Holiday(Mon,Jan19**no   class**)
    AAPTWinter2004Meeting(Mon,Jan26–Wed,Jan28   **specialarrangementswillbemade**)
    MardiGrasHolidaysLaborDay(Mon,Feb23–Wed,F   eb25**noclass**)

    MidtermPeriod(Tue,Mar2–Fri,Mar5)[Gradesdu   eMar8]
    SpringBreak(Mon,Mar8–Fri,Mar12**noclass   **)
    AcademicAdvisingDay(Wed,Mar17**noclass**)

    EasterHoliday(Fri,Apr9**noclass**)
    SeniorsExamPeriod:(Wed,Apr14-Fri,Apr16)
    LastDaytoWithdraw(Wed,Apr14)
    LastDayofClasses:(Wed,Apr28)
    ExamPeriod:(Fri,Apr30-Thu,May6)   [GradesdueMay10]
    Read this aloud: [the final is only given on the date and time assigned by the University --- do **not** make early travel plans]. *Read this aloud again.*

SequenceofPHY390topics:
    WhatyoureallyneedtoknowaboutWaves
        Serway-PSECh16WaveMotion
        Serway-PSECh17SoundWaves(17.4SphericalandPl   aneWaves,17.5DopplerEffect)
        Serway-PSECh18SuperpositionandStandingWaves
    Classically,LightisaTransverseElectromagnetic   Wave
        Serway-PSECh34ElectromagneticWaves
    GeometricOptics
        Serway-PSECh35TheNatureofLightandtheLawso   fGeometricOptics
        Serway-PSECh36GeometricOptics
    PhysicalOptics
        Serway-PSECh37InterferenceofLightWaves
        Serway-PSECh38DiffractionandPolarization
    QuantumMechanically,LightalsohasParticle-like   properties
        Serway-MPCh2TheQuantumTheoryofLight
    *QuantumMechanically,ParticleshaveWave-likepro   perties (***timepermitting**)
        Serway-MPCh3TheParticleNatureofMatter
        Serway-MPCh4MatterWaves
        Serway-MPCh5QuantumMechanicsinOneDimension

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     January            Rough Schedule
Su Mo Tu We Th Fr Sa
         [8] 9      Ch 16
   12      14   16
 [19]      21   23    Ch 17
 {26      28} 30     Ch 18 (with special arrangements)
     February
   2       4    6    Ch 34
   9      11   13
  16      18   20    Ch 35
 [23 MG 25]   27
      March
   1 ____3_____5     Midterm Exam on Monday or Wednesday
  [SPRING_BREAK]
  15   [17]  19    Ch 36
  22    24   26    Ch 37
  29    31
     April
              2    Ch 38
   5     7   [9]
ES 12   14   16    MP-Ch 2
   19   21   23    MP-Ch 3
   26   28|  _30
      May
  _3__4__5__6
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