1.0 Degree Title
Specify the two degrees for concurrent degree programs
Joint Honours in Mathematics and Physics

1.1 Major (Legacy = Subject) (30-char. max.)

1.2 Concentration (Legacy = Concentration/Option)
If applicable (30 char. max.)

1.3 Minor (with Concentration, if applicable)
(30 char. max.)

1.4 Category
☐ Faculty Program (FP) ☑ Honours (HON)
☐ Major
☐ Joint Major
☐ Major Concentration (CON)
☐ Minor
☐ Minor Concentration (CON)
☐ Joint Honours Component (HC)
☐ Internship/Co-op
☐ Thesis (T)
☐ Non-Thesis (N)
☐ Other
Please specify

1.5 Complete Program Title
Joint Honours in Mathematics and Physics

2.0 Administering Faculty/Unit
Science

2.1 Offering Faculty/Department
Physics

3.0 Effective Term of revision or retirement
Please give reasons in 5.0 "Rationale" in the case of retirement (Ex. Sept. 2004 = 200409)

☐ Retirement

Term: Fall 2011

4.0 Existing Credit Weight
81

4.1 Proposed Credit Weight
81

5.0 Rationale for revised program
The list of complementary U3 physics courses for the Joint Honours Math/Physics program is almost identical to the list for the Honours in Physics, with the exception that the Honours in Physics list includes PHYS 432 (Physics of Fluids) and PHYS 434 (Optics), which are not included in the Joint Honours list. The physics department has recently revitalized the Physics of Fluids course, and it is our feeling that the course is taught at the U3 level and covers a subject which is mathematically rich. Therefore we feel it appropriate to include PHYS 432 in the complementary U3 course list for Joint Honours Math/Physics students as well.

6.0 Revised Program Description (Maximum 150 words)

(identical to existing program description)
7.0 List of existing program and proposed program

Existing program (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

Required Courses:
- MATH 235 (3) Algebra 1
- MATH 248 (3) Hon. Advanced Calculus
- MATH 249 (3) Hon. Complex Variables
- MATH 325 (3) Hon. Ordinary Differential Equations
- PHYS 241 (3) Signal Processing
- PHYS 251 (3) Hon. Classical Mechanics 1
- PHYS 257 (3) Experimental Methods 1
- PHYS 258 (3) Experimental Methods 2
- PHYS 260 (3) Modern Physics and Relativity
- MATH 242 (3) Analysis 1
- MATH 255 (3) Hon. Analysis 2
- MATH 375 (3) Honours Partial Differential Equations
- PHYS 253 (3) Thermal Physics
- PHYS 350 (3) Hon. Electricity and Magnetism
- PHYS 352 (3) Hon. Electromagnetic Waves
- PHYS 357 (3) Hon. Quantum Physics 1
- PHYS 359 (3) Hon. Laboratory in Modern Physics 1
- PHYS 362 (3) Statistical Mechanics
- MATH 354 (3) Hon. Analysis 3
- MATH 380 (3) Hon. Differential Geometry
- PHYS 451 (3) Hon. Classical Mechanics 2
- PHYS 457 (3) Hon. Quantum Physics 2

Complementary Courses:
- 3 credits selected from:
  - MATH 251 (3) Hon. Algebra 2
  - MATH 247 (3) Hon. Applied Linear Algebra
- 3 credits selected from:
  - MATH 355 (3) Hon. Analysis 4
  - MATH 370 (3) Hon. Algebra 3
- 3 credits in Hon. Mathematics
- 6 credits selected from:
  - PHYS 479 (3) Hon. Research Project
  - PHYS 514 (3) General Relativity
  - PHYS 521 (3) Astrophysics
  - PHYS 551 (3) Quantum Theory
  - PHYS 557 (3) Nuclear Physics
  - PHYS 558 (3) Solid State Physics
  - PHYS 559 (3) Advanced Statistical Mechanics
  - PHYS 562 (3) Electromagnetic Theory
  - PHYS 567 (3) Particle Physics
  - PHYS 580 (3) Introduction to String Theory

Proposed program (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

Required Courses:
- MATH 235 (3) Algebra 1
- MATH 248 (3) Hon. Advanced Calculus
- MATH 249 (3) Hon. Complex Variables
- MATH 325 (3) Hon. Ordinary Differential Equations
- PHYS 241 (3) Signal Processing
- PHYS 251 (3) Hon. Classical Mechanics 1
- PHYS 257 (3) Experimental Methods 1
- PHYS 258 (3) Experimental Methods 2
- PHYS 260 (3) Modern Physics and Relativity
- MATH 242 (3) Analysis 1
- MATH 255 (3) Hon. Analysis 2
- MATH 375 (3) Honours Partial Differential Equations
- PHYS 253 (3) Thermal Physics
- PHYS 350 (3) Hon. Electricity and Magnetism
- PHYS 352 (3) Hon. Electromagnetic Waves
- PHYS 357 (3) Hon. Quantum Physics 1
- PHYS 359 (3) Hon. Laboratory in Modern Physics 1
- PHYS 362 (3) Statistical Mechanics
- MATH 354 (3) Hon. Analysis 3
- MATH 380 (3) Hon. Differential Geometry
- PHYS 451 (3) Hon. Classical Mechanics 2
- PHYS 457 (3) Hon. Quantum Physics 2

Complementary Courses:
- 3 credits selected from:
  - MATH 251 (3) Hon. Algebra 2
  - MATH 247 (3) Hon. Applied Linear Algebra
- 3 credits selected from:
  - MATH 355 (3) Hon. Analysis 4
  - MATH 370 (3) Hon. Algebra 3
- 3 credits in Hon. Mathematics
- 6 credits selected from:
  - PHYS 432 (3) Physics of Fluids
  - PHYS 479 (3) Hon. Research Project
  - PHYS 514 (3) General Relativity
  - PHYS 521 (3) Astrophysics
  - PHYS 551 (3) Quantum Theory
  - PHYS 557 (3) Nuclear Physics
  - PHYS 558 (3) Solid State Physics
  - PHYS 559 (3) Advanced Statistical Mechanics
  - PHYS 562 (3) Electromagnetic Theory
  - PHYS 567 (3) Particle Physics
  - PHYS 580 (3) Introduction to String Theory
8.0 Consultation with Related Units  
Yes □ No □  
Financial Consult □ Yes □ No

Attach list of consultations

9. Approvals
Routing Sequence  

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<td>Curric/Acad Committee</td>
<td>Charles G.</td>
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<td>Faculty 1</td>
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Submitted by  
Name                |  
Phone               |  
Email                |  
Submission Date      |  

To be completed by ARR:  
CIP Code              |  

Program/Major or Minor/ Concentration Revision Form P2-3
Here you see that math approved our change.

guy

Hi Guy,

that's fine with us.

Best,
Axel

On Thu, 1 Apr 2010, Guy Moore wrote:

> Dear Axel,
> 
> > There was a suggestion here in physics that we add the course "PHYS
> > 332 Physics of Fluids" to the list of U3 complementary physics courses
> > for the joint math/physics honours program. This course, which is
> > advanced enough that we are going to renumber it to 432, already
> > appears on the otherwise almost identical list for our physics honours
> > program. (So does optics, but we felt that this course is less
> > advanced and less mathematically and theoretically inclined to fit
> > well on this
> > list.)
> > 
> > What would mathematics think about such a change?
> > 
> >
>  --

Guy D. Moore