UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: Prof. Richard Braun phone number 831-1869
Department: Mathematical Sciences email: braun@math.udel.edu

Action: Revision to MS program in Applied Mathematics
(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective term: 09F (use format 04F, 05W)

Current degree: MS in Applied Mathematics
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: no change
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: no change
(Proposed new name for revised or new major / minor / concentration / academic unit
(if applicable)

Revising or Deleting:

Undergraduate major / Concentration: ____________________________
(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor: ____________________________
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: X
(Must attach your Graduate Program Policy Statement)

Graduate Program of Study: MS in Applied Mathematics
(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration: ____________________________

Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.

In appendix B, the changed document is attached. The old text is struck out and the new text is in blue or red.

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?
(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter “None”)

None

Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: http://www.ugs.udel.edu/gened/

This is a graduate program so this category is not applicable.

Identify other units affected by the proposed changes:
(Attach permission from the affected units. If no other unit is affected, enter “None”)

The only unit affected could be Electrical and Computer Engineering, and they would be affected by moving Math 694
from the fall to the spring. They agree to this move; see appendix C for an email agreeing to the change.

**Describe the rationale for the proposed program change(s):**
(Explain your reasons for creating, revising, or deleting the curriculum or program.)

The department voted to eliminate the seminar requirement for this degree. The students were not happy with it, and we will encourage them with methods other than a requirement to attend seminars and colloquia. We believe that this will help us recruit students to the program.

The syllabus for the first year analysis courses, Math 600 and 602, have been adjusted because of the removal of more advanced courses in analysis (Math 805 and 807). The remaining changes don’t have any affect on the MS in Applied Mathematics.

A Thesis Option has been added for both the MS in Applied Mathematics and the MS in Mathematics. This option will allow students to explore a topic of interest in more depth, and to get valuable experience in writing via the MS thesis. We believe that this option will aid in recruiting strong students to our program.

Additional course scheduling and complete program changes are listed in Appendix A.

**Program Requirements:**
(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and include a side-by-side comparison of the credit distribution before and after the proposed change.)

The only program requirement change is the removal of 4 credits of seminar credits; all other requirements remain the same. A comparison of the requirements before and after the proposed change follows.

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core requirements</td>
<td>Core requirements</td>
</tr>
<tr>
<td>18 credit hours</td>
<td>18 credit hours</td>
</tr>
<tr>
<td>Additional MS requirements</td>
<td>Additional MS requirements</td>
</tr>
<tr>
<td>12 credit hours</td>
<td>12 credit hours</td>
</tr>
<tr>
<td>Seminars-colloquia</td>
<td>Seminars-colloquia</td>
</tr>
<tr>
<td>4 credit hours</td>
<td>4 credit hours</td>
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</tbody>
</table>

A thesis option has been added with up to 6 credits being earned through research (Math 868 Research) and the thesis (Math 869 Master’s Thesis) ; the total number of credits is still 30.

<table>
<thead>
<tr>
<th>New</th>
<th>Old</th>
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</thead>
<tbody>
<tr>
<td>Core requirements</td>
<td>Core requirements</td>
</tr>
<tr>
<td>18 credit hours</td>
<td>18 credit hours</td>
</tr>
<tr>
<td>Research (M868)</td>
<td>Additional MS requirements</td>
</tr>
<tr>
<td>3 credit hours</td>
<td>12 credit hours</td>
</tr>
<tr>
<td>Thesis (M869)</td>
<td></td>
</tr>
<tr>
<td>3 credit hours</td>
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<tr>
<td>Additional MS Requirements</td>
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<tr>
<td>12 credit hours</td>
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</tbody>
</table>

**ROUTING AND AUTHORIZATION:**
(Please do not remove supporting documentation.)

- Department Chairperson __________________________ Date __________
- Dean of College __________________________ Date __________
- Chairperson, College Curriculum Committee __________________________ Date __________
- Chairperson, Senate Com. on UG or GR Studies __________________________ Date __________
- Chairperson, Senate Coordinating Com. __________________________ Date __________
- Secretary, Faculty Senate __________________________ Date __________
- Date of Senate Resolution __________________________ Date to be Effective __________
- Registrar __________________________ Program Code __________ Date __________
- Vice Provost for Academic Affairs & International Programs __________________________ Date __________
- Provost __________________________ Date __________
- Board of Trustee Notification __________________________ Date __________
- Revised 10/23/2007 /khs

Appendix A. List of changes to the graduate programs in the Department of Mathematical Sciences. The MS in
Applied Mathematics program is affected by the changes in green.

Appendix B. Modified Program Policy Statement with old text struck out, and new text in color.

Appendix C. Email agreement to moving Math 694.

[...header info edited...]  
From: Javier Garcia-Frias <jgarcia@ee.udel.edu>  
To: braun@math.udel.edu  
Cc: Gonzalo R Arce <arce@ece.udel.edu>, Javier Garcia-Frias <jgarcia@ee.udel.edu>  
Subject: Re: [Fwd: Moving Math 694 from fall to spring]  
Date: Tue, 28 Oct 2008 18:56:36 -0400  

Dear Rich,  

We are fine with the move. By the way, there are very interesting topics in optimization from an EE perspective (related with the new field of compressed sensing). I am not sure if they could also be of interest to you? Perhaps we could briefly talk about it?  

Regards,  

Javier

Javier Garcia-Frias  
Professor  
ECE Department  

On Oct 28, 2008, at 11:42 AM, Kenneth Barner wrote:

> Rich:
> > Gonzalo or Javier, who is now in charge of the graduate program,
> > should give any official response. So I defer to them.
> >
> > Ken
> >
> > [E-mail composed using speech recognition. Please ignore errors.]
> > -----------------
> > Kenneth E. Barner
> > Professor
> > Department of Electrical and Computer Engineering
> > University of Delaware Newark, Delaware 19716
> > Phone: (302) 831-6937 Fax: (302) 831-4316
> > Email: ken@barner.net Web: www.ece.udel.edu/~barner
> >
> > From: Richard Braun [mailto:braun@math.udel.edu]
> > Sent: Monday, October 27, 2008 10:23 PM
> > To: barner@ece.udel.edu; Gonzalo R Arce
> > Cc: Rich Braun
> > Subject: [Fwd: Moving Math 694 from fall to spring]
> >
> > Dear Ken and Gonzalo,
> >
> > The Math department would like to move Math 694 to the spring semester
> > from the fall semester when it is currently taught. A fair number
of ECE students take this course, and on the phone, Ken mentioned that he thought it
would be better if we did move the course because first year grads would get a
semester under their belts before taking this course.

The Math department has approved this move with a vote.

Could you please confirm via whether you will agree with this move?

It turns out that it would be helpful to have a documented agreement

for the course change process. I have an October 31st deadline, but could
really use a response as soon as possible to get a bunch of changes
into the system.

Many thanks,
Rich
(Director of Grad Studies in Math)

-------- Original Message --------

Subject: Moving Math 694 from fall to spring
Date: Thu, 02 Oct 2008 09:16:34 -0400
From: Richard Braun <braun@math.udel.edu>
Reply-To: braun@math.udel.edu
Organization: Math Sciences, U of Delaware
To: barner@ece.udel.edu
CC: Rich Braun <braun@math.udel.edu>

Dear Ken,
It looks like there may be advantages for some of our graduate students
to move Math 694 Methods of Optimization from being offered in the fall each
year (the current situation) to the spring. I'm writing you about this because quite a
few ECE grad students take this course, and we wouldn't want to prevent them
from continuing to do so. Do you know if such a move will present any problems
for your grad students who want to take this course?
Thanks for your help.
Best wishes,
Rich
--

Richard Braun       http://www.math.udel.edu/~braun
Department of Math Sciences     Voice: (302) 831-1869
University of Delaware     Fax:   (302) 831-4511
Newark, DE 19716     Email:  braun@math.udel.edu

Appendix D. Modifications to the actual catalog pages are shown in this scanned document.