Patrick Karangwa

Class of 2013

Interdisciplinary Major Proposal

Applied Mathematics

Hendrix College has a great mathematics program and one can firmly say that it is the best in region. However, it is only focused on pure mathematics which is unfortunate for students like me who want to study mathematics but who are not interested in the further study of pure mathematics. After taking a number of mathematics courses, I have come to recognize where my ability and passion are. I found myself loving applied mathematics and working on mathematical models, but our program entirely focuses on pure mathematics with emphasis on proofs which is a little contrary to what I wanted; I am interested in applied mathematics specifically with its applications in business. Because of that, I am proposing the following major in applied mathematics.

The courses that are included in my proposed major are as follows:

- MATH 130 *Calculus I*
- MATH 140 *Calculus II*
- PHYS 230 *General Physics I (Calculus-Based)*
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- MATH 240 *Discrete Mathematics*
- MATH 290 *Introduction to Advanced Mathematics*
- MATH 270 *Linear Algebra*
- MATH 310 *Mathematical Probability and Statistics*
- MATH 490 *Advanced Topics in Math (Image Processing)*
- MATH 4372 *Introduction to Statistical Inference (*I took it in UCA spring 2012*)*
- MATH 350 *Real Analysis*
- MATH 4380 *Advanced Probabilistic Models (*I'm currently taking it UCA fall)

I tried to match the above list with normal math major course requirements (as shown in the 2009-2010 Hendrix Catalog):

- MATH 130, 140, 240 and 290 are exactly what is indicated in catalogue
- The difference comes in the two-course sequence; here I will have MATH 310 and MATH 4372
- Two breadth courses are MATH 270 Linear algebra and ECON 300 Intermediate Microeconomics
- Three additional courses chosen from courses numbered 300 or above: MATH 490 Advanced Topics in Math (Image Processing), Math 4372 Statistical Inference (UCA) and MATH 350 Real Analysis.

The Capstone experience for this major would be the MATH 497 Senior Seminar course required of all Hendrix mathematics majors. I believe that this capstone logically fits the proposed major, since a senior research project in applied math could be developed in much the same way projects for pure math are."

By pursuing the above major, I will have a good background in problem-solving activities in real-world situations in my area of interest (in banking, accounting, and in financial and risk management etc.).

Interdisciplinary Major Committee:

Dr. Duff Campbell, Mathematics, Committee Chair

Dr. David Sutherland, Mathematics

Subject: Interdisciplinary Major proposal
Date: Thursday, September 6, 2012 11:16:42 AM CT
From: Campbell, Duff
To: Sutherland, David
CC: Karangwa, Patrick, Ferrer, Gabe

David,

Here is Patrick Karangwa's Interdisciplinary Major proposal for a major in Applied Mathematics. Gabe has already looked at it, and I think the department would agree that this course of study is at least as rigorous, and just as appropriate, as Ross Crocker's proposal last year.

Does this e-mail constitute a signature? If not, I will come up there and sign it.

Thank you,
Duff