

# MS in Applied Mathematics and Computer Science

## Department of Computer and Information Sciences

### Indiana University South Bend

#### Goal:

This graduate degree is offered jointly by the *Department of Computer and Information Sciences* and the *Department of Mathematical Sciences* at IU South Bend. The goal of this program is to address the needs of people who already have work experience in technical or quantitative fields, people with undergraduate degrees in science or business, or people who simply wish to increase their level of skills and expertise in computing and applied mathematics.

#### Requirements:

The program will be tailored to individual student needs, and will consist of 36 credit hours, including 30-33 hours of course work and 3-6 hours of a thesis or graduate project.

#### Requirement Group-A (9 Credits)

B503 - Algorithms Design & Analysis (3 credits)

And choose 2 from the list below: (6 credits)

- o B538 - Networks & Distributed Computing
- o B551 - Artificial Intelligence
- o B561 - Advanced Database Concepts
- o B581 - Advanced Computer Graphics
- o P565 - Software Engineering

#### Requirement Group-B (9 Credits)

Choose 3 from the list below:

- o M560 - Applied Stochastic Processes
- o M562 - Stat. Design of Experiments
- o M571 - Analysis of Numerical Methods I
- o M575 - Simulation Modeling
- o M576 - Forecasting
- o M577 - Operations Research

#### ELECTIVE COURSES (12 to 15 Credits)

- o B553 - Biomorphic Computing
- o B582 - Image Synthesis
- o B583 - Game Programming & Design
- o B651 - Natural Language Processing
- o B524 - Parallel & Distributed Comp.
- o B657 - Computer Vision
- o B689 - Graphics and Human Computer Interaction (HCI)
- o M546 - Control Theory
- o M551 - Markets & Asset Pricing
- o M565 - Analysis of Variance
- o M415 - Complex Variables & Application.
- o M451 - Math of Finance & Interest
- o C431 - Assemblers & Compilers I
- o B438 - Computer Networks
- o C435 - Operating Systems
- o C421 - Computer Organization
- o C441 - Info Org & Retrieval
- o C442/A510 -Database Management. Systems
- o C463 - Artificial Intelligence
- o C490 - Topics in Computer Science
- o M463 - Intro. to Probability Theory
- o M466 - Introduction to Math Stats
- o M572 - Numerical Analysis II
- o M447 - Math Modeling I
- o M448 - Math Modeling II

Also, additional courses from Group A and Group B may be selected. No more than three 400-level courses may be selected.

#### Computer Science at IU South Bend?

- ◆ As the premier public institution of higher education in the region, our mission is to provide the highest quality education in the most enjoyable and friendly atmosphere possible. In pursuing this mission we work hard to attract the best and most qualified faculty and staff to our program. We also work hard to build and maintain up-to-date computer laboratories which are crucial to our program. Through our internship program for students, faculty consulting and volunteering, we interact regularly with our local industry so that we continually exchange ideas to the mutual benefit of both the business community and the university. Our goal is to bridge the gap between theories and concepts presented in the classroom and real life business and industry needs and practices.

#### What is the job outlook?

- ◆ There are excellent employment opportunities for our graduates. Almost every student and every alumnus of our program is gainfully employed. In our region, the average starting salary for our students is currently in the mid 40's. Nationally, salaries range from low 40's to upper 70's

#### Why IUSB?

- ◆ IU South Bend is the only public university in the region (60 miles radius) equipped to offer quality graduate and undergraduate programs in computer science.
- ◆ Our graduate class sizes average around 10 students, and almost never exceeding 15.
- ◆ We have 9 full time faculty with Ph.D. degrees in computer science or closely related areas. Faculty research interests include Artificial Intelligence, Computer Graphics, Computer Networks, Algorithms, Database Systems.
- ◆ The typical salary for our new graduates in the region is approximately \$40,000 to \$45,000.

#### Contact Information:

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