

# The Industrial Engineering Ph.D Program



**It's Happening Here.**

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# What it is

- **The highest degree awarded by Universities**
- **A degree in which you create and add to the existing knowledge base**
- ***A research oriented degree***
- **An effort that will result in a thesis that will be available *worldwide***

# The UofL IE PhD degree - Admission Requirements

- \* **Baccalaureate degree with complete transcripts**
- \* **3.00/4.00 GPA for unconditional admission**
- \* **A combined verbal and quantitative score for the GRE basic examination of at least 1200**
- \* **For international students, a TOEFL score of at least 550 for paper based tests, or 217 for computer based tests, or 80 on the internet-based test**

# The UofL IE PhD degree - Pre-requisites

- \* **Must demonstrate mathematical preparation**
  - \* **Calculus, Differential equations, and Linear Algebra**
- \* **Engineers**
  - \* **EM 513 Operations Management**
- \* **Non Engineers**
  - \* **Above prerequisite + other courses advisor deems appropriate**

# The UofL IE PhD degree - Admission Process

- \* **Apply online at <https://graduate.louisville.edu/apply>**
- \* **GRE, TOEFL (if necessary) scores, at least three completed reference letters, a personal statement and a curriculum vitae**
- \* **Reviewed by the Graduate Admissions Committee (GAC) and a decision on admission and financial aid**

# The UofL IE PhD degree - Course Requirements

- \* **78 credits post Bachelor's**
- \* **48 credits post Masters**
- \* **About 18 dissertation credits**
- \* **IE 515, Operations Research Methods (3) or IE 610, Foundations of Optimization**
- \* **IE 541, Simulation (3)**
- \* **EM 561, Engineering Statistics I (3) or IE 563, Experimental Design in Engineering**
- \* **IE 580, Principles of Occupational Ergonomics (3) or IE 581, Ergonomic Techniques in the Workplace (3)**
- \* **IE 630, Advanced Production Systems Design (3) or IE 600, Advanced Manufacturing Methods**
- \* **IE 657, Models for Design and Analysis of Logistical Systems (3) or IE 655, Supply Chain Engineering**
- \* **IE 693, Doctoral Qualifying Exam (1)**

# The UofL IE PhD degree - Milestone 1

- **After 15 hours of graduate level course work**
- **Must register for a 1-credit, IE-693, Doctoral Qualifying Exam**
- **Four-hour long exam, with one question in:**
  - \* **Deterministic operations research (linear and integer programming), and**
  - \* **Stochastic operations research (queuing theory and simulation), and**
  - \* **Probability and Statistics**
  - \* **The reference courses for the DQE are IE 515, IE 541 and EM 561, respectively**

# The UofL IE PhD degree - Milestone 1

- \* **The DQE will be offered twice, once in July and again in December (based on need)**
- \* **A student will have two attempts to pass the exam**
- \* **If failing in both attempts, funding will be discontinued**
- \* **The student can be awarded a Masters degree provided all requirements for completion of that degree are satisfied**
- \* **The passing or failing of exam will be voted by GAC**
- \* **GAC will receive and consider student's DQE performance, GPA, faculty input and other relevant material that may be submitted by student or faculty**

# The UofL IE PhD degree - Milestone 2

- \* **Find advisor and form dissertation committee with advisor input in 2nd year**
- \* **Committee includes 5 members of the graduate faculty**
- \* **At least 3 from IE**
- \* **At least 1 from outside IE**
- \* **Thesis advisor is Chair of committee**
- \* **Submit a written proposal for dissertation research to committee**
- \* **Oral presentation of the proposal to dissertation committee**
- \* **Dissertation committee may vote to admit student to candidacy for the Ph.D. degree after oral presentation and completion of the six core courses**
- \* **Dissertation committee may vote to delay or deny admission to candidacy**

# What UofL PhD is not

- **An extended Masters degree**
- **Writing up a software or solving a problem at a company**
- ***A practice oriented degree***
- **An effort that will result in a document that contains company confidential information**

# The UofL IE PhD degree - Milestone 3

- ✱ **Submit a dissertation to committee**
- ✱ **Defend thesis in public**
- ✱ **At least 9 months and atmost 4 years between admission to candidacy and thesis defense**
- ✱ **Invite your advisor, committee and friends to Oktoberfest**

**Thank you!**

**Questions &  
Comments?**