




# IEOR Minor

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- What is IEOR?
  - Should I pursue a Minor in IEOR? How will it help me?
  - Research areas and courses offered
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# What is IEOR?

## IEOR - Industrial Engineering and Operations Research

- Interdisciplinary field combining engineering, mathematics, and business management principles to optimize complex systems and make data-driven decisions
- Involves designing, analyzing, and improving systems enhancing productivity and overall performance



# Why should I pick IEOR? How will it help me?

IEOR equips you with various skills which are used in both industry and research

- Problem solving skills
- Optimisation and efficiency
- Data analysis and modelling
- Risk analysis and management
- Systems analysis

It is a versatile Minor that compliments all Majors. The things you learn here are applied in various industries.



## Research areas (and courses) in IEOR

- Optimization: Models, theory and algorithms
- Stochastic models
- Stochastic control
- Simulation Modeling and Analysis
- Artificial Intelligence based methods
- Game theory
- Logistics and Transportation
- Supply Chain Analysis and Inventory Planning
- Financial Engineering



# My personal motivation for choosing IEOR

- Was really confused and had no clear preference
- IEOR seemed new and fun, wide variety of courses and options, and is useful in various fields
- Optimisation is at the heart of every problem, very useful course  
(take it as an elective/ALC at least)
- Opted for IE 501 (and later on, IE 616), both of which are a part of DS Minor basket  
(gives an option to switch Minors later on!)



## Minor requirements

5 IE labelled courses (30 credits), a large basket of electives available.

At least two courses from the designated basket:

IE 501 (usually slot 5)

IE 503 (slot 5 if IE 501 is not in slot 5)

(IE 621 or IE 502 or IE 611)

(IE 630 or IE 603)

There's one course running in slot 5 always

You'll pretty much find at least one course apart from the one above, that doesn't clash



## Past cut-offs

### Autumn Sem

<b>IE 501</b>	<b>8.37</b>
<b>IE 503</b>	<b>7.83</b>
<b>IE 609</b>	<b>7.27</b>
<b>IE 621</b>	<b>7.37</b>

### Spring Sem

<b>IE 504</b>	<b>5.92</b>
<b>IE 616</b>	<b>8.03</b>
<b>IE 617</b>	<b>7.32</b>
<b>IE 622</b>	<b>7.90</b>
<b>IE 630</b>	<b>4.53</b>
<b>IE 683</b>	<b>5.25</b>
<b>IE 709</b>	<b>5.74</b>



# IE 501 - Optimisation Models

Instructor: Prof. K. S. Mallikarjuna Rao - Autumn 2022

- One of the best courses to start IEOR minor with, not many pre-reqs but knowing linear programming helps
- Pre-midsem slow pace, but picks up later on
- Relatively easy course, decent grade (8 or 9) is attainable by studying just before the exams
- Some concepts here helped me in MA 214 later on
- 2-3 Quizzes/Assignments (30%)  
Mid-sem (20%)  
End-sem (50%)

Total Grades Given for are	182
AA	21
AB	34
AU	1
BB	35
BC	47
CC	24
CD	10
DD	9
FR	1
Total	182

Total Grades Given for section M are	43
AA	17
AB	16
BB	6
BC	3
CD	1
Total	43

# IE 616- Decision Analysis and Game Theory

Instructor: Prof. Urban Larsson - Spring 2022

- Really fun course, actually learnt by playing the games
- No prerequisites, intuitive and easy concepts but math-heavy
- Particular way of writing and presenting your answers, were heavily penalised for that
- Reference book followed mostly, easy language
- Quizzes/Class assignments (30%)  
Mid-sem (20%)  
End-sem (25%)  
Course project (25%)

Total Grades Given for are	109
AA	8
AB	11
AU	2
BB	35
BC	13
CC	16
CD	11
DD	4
FR	9
Total	109

Total Grades Given for section M are	40
AB	1
AP	1
BB	10
BC	13
CC	3
CD	4
DD	5
FR	3
Total	40



## Tips to keep in mind if you take up IEOR

- Attend classes (or at least get the notes from a friend)
- TAs are helpful, attend tutorial sessions and ask doubts
- Have a study group and discuss assignments, projects
- You will feel extremely confident that you will manage things a day before end-sem but that won't be the case, do not underestimate quizzes and assignments
- Emphasis on the way you present a mathematical proof or solution
- Good references, excellent books to read even in your free time!



## Conclusion

- It is normal to be confused about Minor selection; Minors can be changed later on and people have done it
- Ensure you pick a minor that you will actually enjoy and willingly study/attend classes, otherwise it's just taking up 5 more courses that you'll ignore
- You can read my detailed review on IEOR Minor (as well as others' reviews) on ResoBin

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