OPM 560: Business Analytics - Introduction to Operations Analytics with Python

Course announcement

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General Information

Welcome to OPM 560!

- This slide set covers information about the organizational issues of the course
- Everything is planned to be **in-person** (not recorded)
- All course materials and announcements will be provided via ILIAS

Registration and course structure

- **Registration**
  - Registration through Portal2 **until** 09.02.2023
  - Prerequisite for the course: OPM 561
  - **Important:** This course is mandatory for OPM 66X courses
- **Course structure:**
  - Integrated lecture and exercise on Wednesdays
  - Additional Q&A session on Mondays
  - You can attend both OPM 560 and OPM 662 this semester!
- **Lecture and exercises:** (starting on 22.02.2023)
  - Wednesdays, 10:15 - 13:30 (B2-B3)
  - Location: L7 3-5, room 358
  - Dates: 22.02, 01.03, 08.03, 15.03
- **Q&A-Session:** (starting on 27.02.2023)
  - Mondays, time & date TBA

Assignments and exam

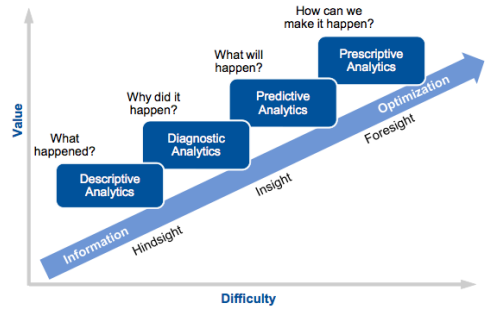
- **Weekly assignments:**
  * Four graded assignments
  * Individual and/or in groups
  * Topics related to operations management
- **Programming exam (before eastern break):**
  * Date: 29.03.2022, 10:15 - 11:00 CET
  * Format: In-person, open-book without internet connection
- **Grading:**
  * Assignments: 70%
  * Programming exam: 30%

Installation help for Python

- We use Python and Jupyter notebook throughout the course
- Have Anaconda installed and running before the first session **(22.02.2023)**
- Installation support session on **(15.02.2023)**
  - Exact time, format, and place will be announced via ILIAS

Key topics

- Basics of programming with Python
- Numerical analysis of capacity planning and operations scheduling problems
- Implementation of predictive and prescriptive analytics models in Python
- Sensitivity analysis to obtain useful managerial insights



Source: Gartner (March 2012)

Structure

I. Get started with Python

- Simple types and operators
- Branching programs and conditional statements
- While loops, for loops and ranges
- Python data structure (list, dict, etc.)
- Functions

II. Descriptive Analytics

- Read and write datasets
- Univariate and bivariate analysis
- Quantify & visualize variability in datasets

III. Predictive Analytics

- Performance evaluation and implementing strategies
- Digital twins and random number simulation

IV. Prescriptive analytics

- Implementation of optimization models
- Sensitivity analysis

See you in Febraury!

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