Time Series Analysis
Fall 2016

Andreas Jakobsson

Administration

Teaching staff
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Tutorial exercises
The tutorials will be held on Thursdays and Fridays; see schedule.

Regular problems
Regular textbook problems from the course book.

Computer exercises
The course examination consist of 3 mandatory computer exercises. They take a long time; come well prepared. Sign up on the webpage. If you are not done, try to get graded at a later exercise.

Computer exercise 0 is voluntary and review stochastic processes.
Administration

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Contents:
- Multivariate random variables
- Conditional expectations
- Linear projections

https://www.scalable-learning.com
course code: RPCPQ-03939

Examination
The examination consist of the computer exercises, a take-home exam and a project.

Project examination will take place on 20/12 (10-12) or on 10/1 (13-16).

A detailed project report and presentation material should be handed in no later than at the start of the presentation.

The take-home is available at 12.00 on 9/1, and is due 16/1, at 13.15.

Max Pass

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<thead>
<tr>
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<th>LTH</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer exercises</td>
<td>3</td>
<td>G</td>
</tr>
<tr>
<td>Take-home exam</td>
<td>4</td>
<td>VG</td>
</tr>
<tr>
<td>Project presentation</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>Project report</td>
<td>6</td>
<td>30</td>
</tr>
</tbody>
</table>

Course representative
Your representative to give feedback to me on the course.

Looking at the earlier evaluations:
- Almost all students appreciate the course, deem it rewarding and relevant for their education.
- The course is uniformly considered demanding.
- The labs are seen as very helpful for the project, but many comment on that they take a lot of time. Come well prepared.
- The project is challenging - it take a lot of time, but is also very rewarding.

Number of airline passengers
Average ice breakup date of the Tanara River

SAR image of oil spill covering the coastal waters of the Yellow Sea, South Korea, Dec. 11, 2007
NQR signal from 180 g TNT (2000 measurements ≈ 8.5 h).

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NQR signal from 180 g TNT (4 measurements).

NQR data without TNT sample.

NQR data including TNT sample.

Course content

This course treats:
• Modeling of linear stochastic systems
• Pre-treatment of measurements
• Prediction, filtering and reconstruction
• Parameter estimation
• Model selection and validation
• Recursive techniques
• Spectral estimation

What to do next:
• Stationary and non-stationary spectral estimation (VT1).
• Non-linear time series analysis (HT1+2).
• Financial statistics (HT2).
• Valuation of derivative assets (HT1).
• Loads of cool thesis projects!!

This week

We will cover
• Multivariate random variables. Stochastic processes.
• Reading instructions: Ch. 1, 2, 3.1-3.3
• Problems: 2.1-2.3, 3.1-3.4

MY HOBBY: EXTRAPOLATING

AS YOU CAN SEE, BY LATE
MORNING, YOU'LL HAVE
OVER FOUR HUSBANDS.
BEETLE JEEP IS ALL
WELL, BUT TIMES ARE
TERRIBLE!