



Faculty of Arts and Social Sciences  
Economics

## Syllabus

### Financial time series analysis

<b>Course Code:</b>	NEAD52
<b>Course Title:</b>	Financial time series analysis <i>Tidsserieanalys i finans och nationalekonomi</i>
<b>Credits:</b>	7.5
<b>Degree Level:</b>	Master's level
<b>Progressive Specialisation:</b>	Second cycle, has only first-cycle course/s as entry requirements (A1N)

**Major Field of Study:**  
NAA (Economics)

#### Course Approval

The syllabus was approved by the Faculty of Arts and Social Sciences 2026-03-05, and is valid from the Autumn semester 2026 at Karlstad University.

#### Prerequisites

30 credits in Statistics, or NEGC16 Applied econometrics (7.5 credits), or NEAD17 Applied econometrics (7.5 credits), or a Bachelor's degree with Economics as the main field of study. An equivalence assessment can be made.

#### Learning Outcomes

Upon completion of the course, students should be able to

1. give an account of statistical properties of financial time series,
2. analyse financial time series using statistical methods,
3. estimate components in a time series model,
4. give an account of basic theory of stationarity and non-stationarity,
5. identify and practically apply various autocorrelation structures, and
6. use basic simulations methods.

#### Content

The course covers the use of statistical and mathematical methods for analysing time series data, with a focus on applications in finance. The course includes the following components:

- descriptive methods
  - autoregressive processes
  - regression models
  - various statistical tests, including Unit Root tests
  - stationary and integrated linear models
  - volatility models
  - methods for studying extreme events
  - methods for analysing multiple financial time series (multivariate methods)
- Applications are illustrated using computers.

#### Reading List

See separate document.

#### Examination

Assessment is based on an on-campus written exam and individual written assignments.

If students have a decision from Karlstad University entitling them to Targeted Study Support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different manner.

**Grades**

One of the grades Pass with Distinction (VG), Pass (G), or Fail (U) is awarded in the examination of the course.

**Quality Assurance**

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

**Course Certificate**

A course certificate will be provided upon request.

**Additional information**

The local regulations for studies at the Bachelor's and Master's levels at Karlstad University stipulate the obligations and rights of students and staff.