



Institute
and Faculty
of Actuaries

Associateship Qualification

Modelling Practice (CP2)

Core Practice

Syllabus for the 2024 Examinations

April 2023

Modelling Practice (CP2)

Syllabus for the 2024 Examinations

This syllabus includes information to support the study of this subject. It will guide you through what you need to learn, application of learning as well as the skills that you need to develop. Information regarding the assessment of this subject is also included.

This syllabus includes:

- Aim of the subject
- How this subject links across the Qualifications
- Subject topics and topic weightings
- Subject objectives
- Assessment information

Aim

Understand and apply the critical steps to model data, document the work, create and maintain an audit trail, analyse the methods used and outputs generated and effectively communicate to colleagues the approach, results and conclusions

Links Across the Qualifications

Associateship Qualification

In the assessment of this subject, students will use techniques and apply concepts developed in CM1, CM2, CS1, and CS2 as well as application of CP1 principles.

Topics and Topic Weightings

1. Preparation and analysis of data [10%]
2. Development of a model [20%]
3. Model testing [5%]
4. Documentation [45%]
5. Communication of results and conclusions [10%]
6. Next steps [10%]

Objectives

1 Preparation and analysis of data [10%]

- 1.1 Use appropriate tools for checking, cleaning, restructuring and transforming data to make it suitable for analysis
- 1.2 Summarise data using appropriate analysis, descriptive statistics and graphical representation
- 1.3 Select and carry out appropriate statistical tests of reasonableness
- 1.4 Make appropriate assumptions about the data provided
- 1.5 Repair corrupt or missing data

2 Development of a model with clear documentation [20%]

- 2.1 Plan and produce a spreadsheet model to solve a specified problem
- 2.2 Create appropriate charts to support visual interpretation of the results

3 Model testing [5%]

- 3.1 Perform checks on the intermediate and final results of a model
- 3.2 Comment on the reasonableness of the results from a model under different scenarios

4 Documentation [45%]

- 4.1 Create a clear audit trail, which could be followed by a senior actuary and would enable the model to be worked on and corrected by a fellow student and includes:
 - key assumptions
 - description of data and model checks
 - methodology
 - reasonableness checks
- 4.2 Draft a clear summary of the model and the results for a senior actuary to include:
 - the data
 - assumptions
 - approach taken
 - results
 - conclusions
 - suggested next steps to develop the model

5 Communication of results and conclusions [10%]

- 5.1 Provide commentary on the results from a model appropriate for the target audience. This should cover, but not be limited to:
 - Analytical comments on each stage of the results, including explaining patterns in the results and any unusual features
 - An explanation of the differences between the results under the various strategies modelled

6 Next Steps [10%]

- 6.1 Identify possible next steps for the client having taken into consideration the initial modelling and the results, including:
 - Possible enhancements to the model
 - Additional modelling to provide additional information to support the project's objectives

Assessment

The assessment of this subject will consist of two examinations, CP2 Paper 1 and CP2 Paper 2.

- CP2 Paper 1 will ask you to consider a scenario and data, complete a data analysis, create a model and provide an audit trail.
- CP2 Paper 2 will ask you to consider a model that has already been produced, carry out some additional modelling, analyse the methods used and the outputs, apply and interpret the results, and communicate the approach, results and conclusions.

The duration of each examination is three hours and twenty minutes and is timed and online. In order to pass this subject, you must sit both CP2 Paper 1 and CP2 Paper 2 within the same sitting and achieve a combined mark of a pass.

In both papers, a number of questions will be set with varying marks and in line with the above syllabus topic weightings and skill levels.

Topic weighting

The topic weighting percentage noted alongside the topics is indicative of the volume of content of a topic within the subject and therefore broadly aligned to the volume of marks allocated to this topic in the examination. For example if a topic is 20% of the subject then you can expect that approximately 20% of the total marks available in the examination paper will be available on that topic.

Candidates for assessment should ensure that they are well prepared across the entire syllabus. The examination can be composed of questions drawing from any part of the syllabus within any examination sitting and using any command verb. This includes knowledge, techniques, principles, theories, and concepts as specified. Candidates should not rely on past papers alone and should ensure they have covered the entire syllabus as part of their learning and development of this subject. A list of command verbs used in the examinations is included on the IFoA website.

In each examination, candidates will be expected to demonstrate, through their answers, that they have knowledge of, can apply and use higher order skills in this subject:

- Knowledge will be demonstrated through answering questions that assess your understanding of that knowledge as well as through questions that ask you to apply relevant knowledge to scenarios.
- Application will be demonstrated through answering questions which assess that you can identify and apply relevant concepts and skills to solve problems (both numerical and non-numerical).
- Higher order skills will be demonstrated through questions that will assess that you can use relevant knowledge, concepts and skills to solve problems, draw appropriate conclusions, and make meaningful and appropriate comments on those conclusions.

As a guide, in the examination of this subject, you can expect that approximately 5% of the total number of marks for this examination be allocated to the demonstration of knowledge, 80% to application and 15% to higher order.

Qualifications Handbook, Examinations Handbook and Assessment Regulations

Please ensure you read and have understood the Examinations Handbook and Assessment Regulations ahead of your exam as well as the Qualifications Handbook. These are all available on the IFoA website.

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