

Syllabus: Decision Making Under Uncertainty: Introduction to Structured Expert Judgement

1. Course overview

The course aims to address the stringent issue of the lack of (appropriate) data. Even though society is currently immersed in loads of data, there are various settings where data are not appropriate or simply missing and decisions still need to be taken. Consider, for example, predicting the volcano activity when there are two eruptions recorded over the last 100 years. Or predicting India's population that will be resistant to antibiotics in 2020, where no data is available at the national level. These are just a few examples of situations where expert opinions are needed in complex decision-making problems. Employing structured expert judgment methods is thus imperative. This MOOC aims to introduce arguably the most rigorous method for performing structured expert judgment, that is the Classical Model (CM) or Cooke's method. CM has been developed at TU Delft. The Classical Model, as a rigorous manner of performing expert judgment, will help you to contribute to your company or institutions forward movement.

2. Learning objectives

This course introduces the learner to methods and tools to apply structured expert judgement, which have been developed at TU Delft. By the end of the course all learners will be able to:

- Account for uncertainty assessments in complex decision-making context when data pose issues*
- Recognize settings within which structured expert judgement is advisable,*
- Use the Classical Model for a structured expert judgment study,*
- Use the IDEA, protocol which can be used together with the Classical Model for improved expert assessments, and*

Verified learners will have the added benefit of being able to:

- Get an in-depth perspective on the CM method*
- Analyze expert real data to apply structured expert judgement methods to real world scenarios*
- Participate in an optional module on different settings of performing expert judgment: discrete RVs, dependence and preference elicitation*

3. What we expect from you

As an online student, we expect you to be an active participant in this course by contributing to a positive atmosphere. We want you to question, share and help others by engaging in meaningful discussions.

Regarding deadlines, we expect you to keep on track in order to benefit from learning within a community. This course is meant to be a place where you learn with and from others. In this sense, we would like you to collaborate with us, so please make sure you follow along with other participants in order to enrich the overall learning experience.

You are expected to [follow forum](#) and [collaboration guidelines](#). Respect the course policies, academic integrity and most importantly your fellow students.

4. What you can expect from us / the course team

The moderator will guide you throughout the course, launching the weekly content, promoting and engaging in discussions, and providing feedback regarding your performance after each week. Guidance and support will happen on a regular basis.

Response Time: We will try to respond to all your questions and posts within 24-48 hours. If this not possible for any reason, we will let you know.

5. Course structure

The course is organized in *6 one week blocks*. A brief summary of each unit is presented below. Detailed instructions and resources will be provided during the course.

Week 0. Getting started with the structured expert judgment (SEJ) course

In the Getting Started section you'll get to know the course structure, get familiarized with the virtual learning environment, complete your profile, meet your fellow students and the moderator. These introductory tasks should be completed in the beginning of the course, after your first login.

Module 1. Why and when to use structured expert judgment (SEJ) and the Classical Model (CM)

Module 1 will introduce you to the world of SEJ and CM. You will also learn when and why is SEJ appropriate

Module 2. Calibration and information scores

Module 2 presents the two scores within the Classical Model that objectively evaluate experts' assessments.

Module 3. Performance-based weights and the Decision Maker

Module 3 describes how experts' assessments can be combined in the Classical Model

Module 4. Data analysis using Excalibur

During Module 4 you will analyze expert (real) data using the Excalibur software.

Module 5. Practical matters and IDEA

Module 5 presents an overview of the practical matters that need to be accounted when eliciting expert opinion and the IDEA protocol is introduced.

Module 6. Applications of CM

Module 6 includes a number of studies that have used CM

6. Resources, Tools & Browsers

All educational resources will be available in the course. They consist of short videos and readings to support you in the completion of the weekly learning activities.

We support the following browsers: Chrome, Firefox and Safari.

We will also make use of the **Excalibur** software. You can download it from [here](#) or [here](#).

The Matlab toolbox Anduril can be download it from [here](#).

7. Assessment & Certificate

Only verified participants have access to graded assignments. In order to successfully complete the course you need to will need to score 60 %. All assignments are mandatory. Assessment criteria for the assignments are detailed in the course. Verified participants can check their score at any time under the course's Progress page.

Upgrade to a Verified Certificate gives you:

- a certificate if you successfully completed the course;
- access to graded assignments;
- access to the archived course after the end date.

These certificates will indicate you have successfully completed the course, but will not include a specific grade. Certificates will be issued by edX under the name of DelftX, designating the institution from which the course originated.

Do you need financial assistance? EdX offers up to a 90% discount on our verified certificates to learners who cannot afford to pay full price. [Check the edX support page for financial assistance.](#)

Generating an ID verified certificate

Verified certificates will be issued a few days after the end of the course, to verified participants who successfully completed the course. Certificates can be downloaded from your Student Dashboard (look for the Download button next to the name of our course). An ID verified Certificate of Achievement is available for \$ 50. You can Upgrade on your edX Dashboard to Verified during the course. Once produced, a certificate cannot be reissued, hence it is very important that you verify the way in which your name appears. Check that, in your edx.org account, your name is correctly spelled, since it will appear on the final certificate.

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