Plan for first meeting 11-12 August

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| Time | Thursday 11.08 | Time | Friday 12.08 |
| 11.00-11.30 | Welcome to MA6004 and MA6060. Joint information | 09.00-12.00 | More about functions and their properties. The concepts of limit value and continuity.  The concept rate of change. |
| 11.30-12.00 | Lunch | 12.00-12.30 | Lunch |
| 12.00-14.00 | Specific information on MA6004.  Functions: Different types of functions and their properties | 12.30-14.00 | Mathematical modelling |
| 14.00-16.00 | Mathematical modelling | 14.00-15.00 | Work until the next meeting |

Literature:

Gulliksen, Hashemi and Hole, 7th Ed. (2022): Ch. 2-5

Blum and Ferri (2009)

Niss (2015)

Relevant parts of the curriculum:

Core elements in mathematics (R1 as example)

<https://www.udir.no/lk20/mat03-02/om-faget/kjerneelementer>

The course 1T

<https://www.udir.no/lk20/mat09-01/kompetansemaal-og-vurdering/kv42>

The course R1

<https://www.udir.no/lk20/mat03-02/kompetansemaal-og-vurdering/kv293>

Plan for second meeting 15-16 September

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| Time | Thursday 15.09 | Time | Friday 16.09 |
| 09.00-10.30 | **Limits and continuity (Ch. 4)**  Preparation:   * -Study the description of the limit concept in the available textbooks (see Problem set 1) * -Watch the two videos, Limits and continuity part 1 and 2 | 09.00-11.00 | **Differentiation (Ch. 6),**  continued |
| 10.30-12.00 | **Differentiation (Ch. 6)**  What is the derivative?  What can the derivative be used for?  How to find the derivative of a function? | 11.00-12.00 | **Integration (Ch. 7)**  What is meant by an integral?  What can the integral be used for?  How to determine an integral? |
| 12.00-12.30 | Lunch | 12.00-12.30 | Lunch |
| 12.30-13.30 | Discussion of Problem set 1 | 12.30-15.00 | **Integration (Ch. 7),**  continued |
| 13.30-16.00 | Mathematical modelling:  Descriptive and prescriptive modelling  Introduction to the project assignment |
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Literature:

Gulliksen, Hashemi and Hole (2022): Ch. 4, 6 and 7

Blum and Ferri (2009)

Niss (2015)

Plan for third meeting 3-4 November

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| Time | Thursday 03.11 | Time | Friday 04.11 |
| 09.00-12.00 | **Integration (Ch. 7)**  Computing an integral  Applications of the integral  Numerical integration | 09.00-12.00 | **Differential equations (Ch. 9)**  continued |
| 12.00-12.30 | Lunch | 12.00-12.30 | Lunch |
| 12.30-14.00 | Discussion of Problem set 2 | 12.30-13.30 | **Newton’s method (see separate note)** |
| 13.30-15.00 | **Sequences and series (Ch. 4)**  Geometric series in particular |
| 14.00-16.00 | **Differential equations (Ch. 9)**  What is a differential equation?  Separable differential equations  Modelling with differential equations  Numerical solutions (Euler's method) |
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Literature:

Gulliksen, Hashemi and Hole (2015): Ch. 4 (4.4 og 4.5), Ch. 7, Ch. 9 (9.1-9.5, 9.7, 9.9)

Note on numerical methods