

Master's Programme in Water and Environmental Engineering

WAT Orientation Days
Sept 7th-8th 2021

Please prepare to introduce yourself shortly

Who are here?

Hopefully all names are correct...

WAT TEACHERS Anna Riku Harri

Meeri

Marko

Matti

Olli

Juha

Teemu

Eliisa Päivi
Planning officer at LES

More info: people.aalto.fi

Fanni Camilo Eveliina Julia Sara Jouni Osama Ronja
WAT Pauliina Eemeli Juho Caroline Sergei Henrika Vilma

Väinö Ksenija Maiju Henri Nathan Riku Joona Daria Jasmin Trang My Yingxin Milla Sonja

Nordic5Tech:

Maonan Camilla

SOMEONE'S NAME MISSING? (or spelt wrongly?

Exchange students?

WAT?

WAT = Water & Environmental Engineering

→ Our Master's Programme combines theory with practice, including case studies and project work

→ 6th year starting now: really nice to see you all here!

Many great things!

- You! Skillful students with diverse backgrounds
 You will also learn from each other
- Approach: student-centered & problem-oriented
 - Programme-focus (not just a set of courses)
 - Portfolio process
 - → Emphasis on learning (not just on credits)



Unique programme structure

- Only 15 credits of common courses
 - → But that's intensive 1st period then!
 - → Lot of freedom to plan your studies
 - = individualised study paths
 - Major to be done in one year
 - → 2nd year for elective courses: you can do them also abroad!

More on this tomorrow and during WAT-E1100 course





'Ensuring a sustainable & functioning society'

MASTER'S PROGRAMME IN WATER & ENVIRONMENTAL ENGINEERING

Water and environmental engineering is about making the world work.

With limited natural resources and an increasing demand for water, food and energy, we look at practical ways to develop our society in a sustainable manner.

Strong technical basis combined with sound understanding of the broader societal context

Making use of the students'
diverse backgrounds & encouraging
individualised study paths
→ Only 15 credits of common courses

 → Group work, personal portfolio, mentoring process Water & environmental engineering in its broad sense: connection to research, planning & management Strong technical basis, incl. computational skills

Cross-sectoral

Link to practice

Our water & environmental engineering graduates are enthusiastic professionals with solid problem solving skills

- Readiness for problem-solving
 Answering society's practical needs
- MotivationLifelong learning
- Sound professional identity
- Sustainable development in resource scarcity
 - Functioning society

TOTAL 120 cr.

COMMON COURSE 15 cr. ADVANCED COURSES 45 cr.

MAJOR 60 cr.

ELECTIVE, incl. STUDENT EXCHANGE 30 cr.

MASTER'S THESIS 30 cr. You will learn more about our three study paths in today's infopoints!

ADVANCED COURSES

Select 45 credits to create an individual specialisation, and strengthen it with 30 credits of elective courses and your Master's Thesis

COMMON COURSE

Solid foundation for all our graduates



WATER RESOURCES

- Groundwater hydrology
- Hydrological modelling
- Surface water resources
- Environmental hydraulics

WATER & DEVELOPMENT

- Sustainable built environment
 - Sustainable Global Technologies SGT Studio (10 cr.)
 - Water and governance
 - Water and people in a changing world
 - Sustainability in environmental engineering

WATER & WASTEWATER

- Urban water systems
- Physical and chemical treatment of water and waste
 - Biological treatment of water and waste
 - Design and management of water and wastewater networks
 - Modelling and control of treatment processes

Course emphasis on water: you can study general environmental aspects further in other programmes, as part of your elective studies

Water & environmental engineering (15 cr.)

In-depth introduction to the key themes and problem-solving methods in our field, through variety of group work and individual tasks.

Head of the Programme: Associate Professor Marko Keskinen Coordinator: University Teacher (sub.) Meeri Karvinen

Contacts: firstname.lastname@aalto.fi

March 2020

Info on WAT

• "Everything is in Into!" https://into.aalto.fi/display/enwat

CONTACTS:

PÄIVI Kauppinen, Planning Officer MARKO Keskinen, Programme Director MEERI Karvinen, Programme Coordinator

→ (firstname.lastname@aalto.fi)
WAT Master's Programme: wat-eng@aalto.fi

Questions?
You can also ask
them during
today's 'rastit' or
tomorrow's session

What happens today & tomorrow?

- TUE morning = WAT Day: you get to know us (TUE afternoon = online orientation session / possible start of group work)
- WED morning = group work: you get to know your group & think together what you already know
 - WED afternoon = Student Day: we get to know you
 → Also discussion about WAT + portfolio

WAT ORIENTATION DAYS 7.-8.9.2021

Tuesday 7.9.

Wednesday 8.9.

Both days start in Otakaari 1M (Undergraduate center) @ Lecture hall U1

9:00 ap.

INTRODUCTION TO WAT

@ Otakaari 1M, lecture hall U1

- Welcome + introduction Marko & Meeri
- Forming WAT Mentor Groups + instructions
- -> Your group stays the same for the entire Master's Programme
 - Study tour in groups (10.30-)

10-minute visits ('rasti') @ Water Building introducing WAT personnel & research activities + AKVA student association

Group lunch

Starting your group work

Virtual orientation 14.00 in Zoom

only for students unable to attend orientation days @Otaniemi https://aalto.zoom.us/i/68972975042

- Welcome & Introduction to WAT
 - Portfolio process in WAT
- Getting your mentor groups

(Aalto Day One 13.15)

GROUP WORK

-> Each group independently in your chosen location or virtual room; aim to get to know each other and create a Group Presentation.

Tasks for group work:

1) Introductions: each student's background

2) Recognition of your existing knowledge & skills
3) Expectations from the Master's studies + career plans
-> These together = Group Presentation
Also take a Group Photo (or a screen shot if online) and include it into your presentation!

Group lunch

INTRODUCTION TO STUDENTS

@ Otakaari 1M, lecture hall U1

13.00- Introduction to WAT
14.00- Meeting your mentor & Group work presentations

Wrap-up: how does WAT and its students look like?

15.00- Portfolio process in WAT

16.00 Akva-kahvit / Akva Coffee

@ outside Water Building, Tietotie 1E

INFOPOINTS ('rastit') - Tuesday 7.9. @ 10.30-12.00

Location: Water Building and Env. Hydraulics Lab, Tietotie 1E & 1A1

Theme + responsible persons Location

1) BREAK (10 min): Water Building surroundings

2) Water supply & sanitation (RIKU & ANTONINA): Water Building, laboratory (1st floor)

3) Water resources (TEEMU): Environmental Hydraulics Lab (Tietotie 1A1)

4) WAT? Q&A on WAT (MARKO & MEERI): Environmental Hydraulics Lab (Tietotie 1A1)

5 Water & development (MATTI & CO): Water Building, coffee room 248 (2nd floor)

6) Akva student association: Water Building, lecure hall 286 (2nd floor)

These available in WAT-E1100 MyCourses: WAT Orientation Days

https://mycourses.aalto.fi/course/view.nhn?id=33494§ion=2

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What are your expectations from WAT?

Think first by yourself, then with a pair

YOU = GROUP OF EXPERTS

Diverse expertise: different fields, degrees, interests...

- → Three important ways to make use of your diversity
- 1) Portfolio & mentoring process = creating your Personal Learning Portfolio and discussing it with your fellow students
 - → Combined with a mentoring process with WAT staff
 - → Assessing your current levels of expertise in the WAT Course (= our common course), and reflecting your learning throughout the programme
- 2) Group work = most courses make use of group work activities

 → Be prepared (we'll practice it during WAT Course)
 - 3) You and your mindset = be ready to learn from each other!
 - → Be active + make your expertise & interests known, to us and to your fellow students
 - → It's about learning & expertise, not (just) credits

EXPERTS, GET INTO YOUR GROUPS!

A key set of expertise =

| Extern applicants applicants applicants applicants applicants applicants applicants

• IDEA: to combine the expertise from inside and outside Aalto, to share ideas, knowledge & skills + best practices

HOW: Make your Expert Hat based on your background:

Yellow: coming from Aalto

Bluegreen: coming from outside Aalto

→ Write your name clearly to your hat!

Getting to know each other

Before forming the groups, we'll help you to get to know each other using a COCKTAIL PARTY METHOD

→ 3 min chat with your fellow student (changing the pairs every 3 minutes, for a few times)

With your pair, share 3 things:

- 1. Your name
- 2. Background
 - 3. Interests

You have just 3 minutes, so be clear and concise + make sure both of you have the time to tell the 3 things!

Expert Hat Market: Forming the groups

TASK: form six groups of 4-6 experts, including experts with both colours (+ possible exchange student)

→ This will be your WAT Mentor Group

HOW: Akva tutors (with yellow hats) will form the 'seed persons' for the groups, others can join any group they wish

A few students will attend only the online orientation today, so some groups will get new members this afternoon.

It's your group!

- This will be your first (but not only) peer-support group during your studies:
- WAT Course group work also done in these groups
- Your task for this afternoon & tomorrow morning: get to know each other, and agree on how to present your group to others on Wed afternoon with a Group Presentation
 - →Instructions in MyCourses (WAT-E1100, Orientation Days)

https://mycourses.aalto.fi/course/view.php?id=33494§ion=2

1) Introductions: introduce yourselves to each other

→ Where you come from, what you have studied, why you decided to apply to WAT etc.

2) Recognising existing expertise

→ Discuss what kind of knowledge and skills each of you already has related to our water and environmental engineering field. How do your knowledge and skills differ? Can you already think some ways that your expertise is complementary?

3) Expectations from the <u>Master's</u> studies

→ What do you expect from your studies? What kind of knowledge and skills you would like to get during your studies? What are your career plans and general dreams for life?

4) Take a 'usie' i.e. group selfie and include it the last page of your presentation, with your names (listed in the same order than you are in the photo).

→ you can e.g. take a screen shot from your virtual room or create a groupie using Photoshop, or whatever you find the most convenient for your group.

Presentation must include (as text, drawing, diagrams, images etc.) following elements:

- Number and name of your group as a poster title
- Names of each group member
- Group's 'identity', based on your background
- Group's existing expertise
- Key expectations from WAT Master's Programme
- Group picture with names

Document all these into your PowerPoint in a clear manner, so that you can present it (and thus your group) to others **in 10 minutes**. Submit the presentation to MyCourses submission box by Wed 8.9. at 13.00: https://mycourses.aalto.fi/mod/assign/view.php?id=780464

Infopoints i.e. 'rastit'

- Start with the infopoint that has the same number than your group:
 - Group 1 = infopoint 1, Group 2 = infopoint 2 etc..
- Then go to the next number, $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6$ (note that after infopoint 6, you will go to infopoint 1 = 10min Break)
- 10min/infopoint + ~5min short break to change rooms
- →Infopoints start approximately at:
- -10.30 -10.45 -11.00 -11.15 -11.30 11.45
- → We'll gather @Water Building main entrance before going into the first infopoints! Then pick one from you group to keep time.

My group!

After the infopoints, go to lunch with your group and:

- 1) Share your contact information with each other
- 2) Agree on your meeting time & place for tomorrow morning
- -> You can also naturally start preparing your group work, but do note that you may still get additional student(s) to join your group online

Akva seed person will be the contact point for possible online group members – think together how to best work all together!

Practicalities about teaching

Teaching in Period I takes place both, at Otaniemi campus and online in Teams.

- → If needed, (almost) all teaching can be participated online
- → Follow carefully the information given in MyCourses!
- → Most of the courses use Teams for online sessions, discussion & assistance in exercises download join the Teams groups in time!
- → Make sure to also follow your aalto.fi —email

Teaching @ Otaniemi on Mondays: mainly in Otakaari 4, hall 215 Lab & flume exercises: Water Building, Tietotie 1E / 1A1

- → Water Building (Tietotie 1E) Lecture Hall 286/287 has also students' Coffee Corner, maintained by Akva
- → Lockers in Computer class 229



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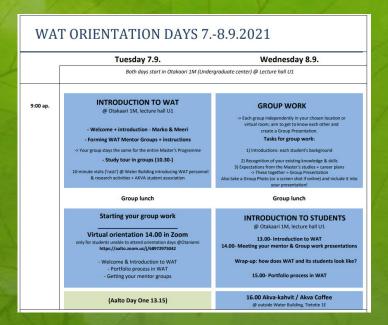
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WAT Wednesday

- How was yesterday/this morning?
 Any questions or comments?
- → Related to our programme or research / rastit?
 - → Related to your group

Today's tasks:

- 1) to get to know you
 - 2) talk about WAT
 - & portfolio process





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MASTER'S PROGRAMME IN WATER & ENVIRONMENTAL ENGINEERING

Water and environmental engineering is essentially about making the world work.

With limited natural resources and an increasing demand for water, food and our society in a sustainable manner.

> Strong technical basis combined with sound understanding of the broader societal context

Making use of the students' diverse backgrounds & encouraging individualised study paths → Only one 15 cr common course

Student-centered learning

→ Group work, personal portfolio, mentoring

engineering in its broad planning & manager

. Link to pred

energy, we look at practical ways to develop Our water & environmental engineering graduates are enthusiastic professionals with solid problem solving skills

TOTAL 120 cr





Three study paths,

corresponding with

our research focus

different emphasis:

WAT Course gives

information about

-> Have bit

more

this

ADVANCED COURSES

Select 45 credits to create an individual specialisation, and strengthen it with 30 credits of elective courses

COMMON COURSE

Solid foundation

for all our graduates

WATER & DEVELOPMENT · Sustainable built environment · Sustainable Global

> Technologies SGT Studio (10 cr) · Water and governance

WATER RESOURCES · Groundwater hydrology

· Hydrological modelling

· Surface water resources

. Environmental hydraulics

- · Water and people in a changing world
- · Sustainability in environmental engineering

WATER & WASTEWATER

- . Urban water systems
- · Physical and chemical treatment of water and waste
- . Biological treatment of water and waste
- . Design and management of water and wastewater networks
- . Modelling and control of treatment processes

Water and environmental engineering (15 cr)

Key contents related to the field. combined with core computational methods in a broader context

BAgitoWAT

Head of the Programme: Seniar University Lecturer Marko Keskinen Coordinator: University Teacher (sub) Meeri Karvinen Contacts: firstname.lastname@baalta.fl

February 2020

WAT?

Strong technical basis, combined with understanding of broader societal context.

Emphasising project and interaction skills, too. → Based on stakeholder feedback, including our WAT Alumni survey

> Employment and career of Aalto University water and environmental engineering alumni

> > WAT ALUMNI SURVEY RESULTS 2017





Alumni survey 2017 & Stakeholder survey 2019-20

Employment and career of Aalto University water and environmental engineering alumni

WAT ALUMNI SURVEY RESULTS 2017

Stakeholder survey results 2020 of Aalto University's Master's Programme in Water and environmental engineering

Stakeholders' perceptions of the development of the field, role and skills of graduates, and working life needs

Julia Renko, Anni Kaikko and Meeri Karvinen











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- Cross-sectoral
- Link to practice

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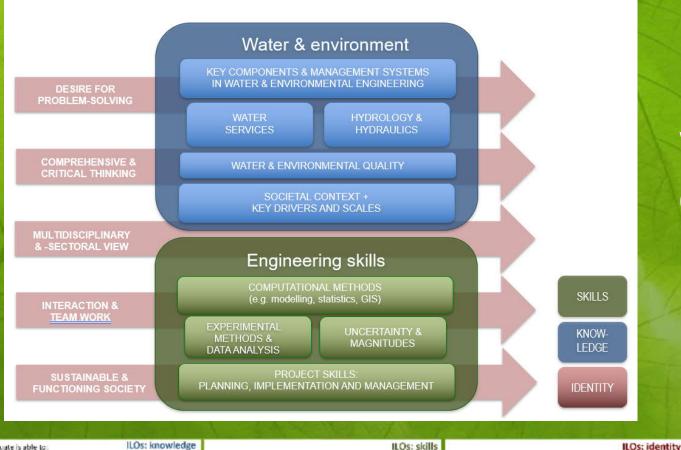
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March 2020



WAT comptences & ILOs

(i.e. our quality promise for you and our field)

Our graduate is able to:

ILOs: knowledge

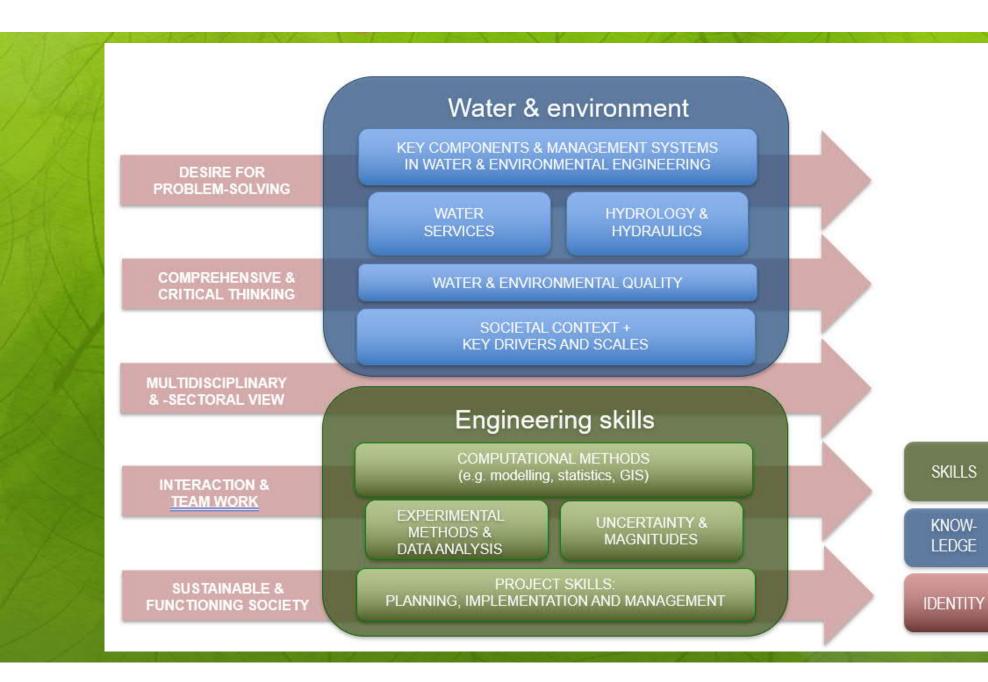
- Recognise the key components and management systems in water and environmental engineering, and understand the relevance of sustainability for the field.
- 2) Understand the principles of the hydrological cycle and movements of water in natural and built environments.
- Define and differentiate the main sections of water services and environmental services, with locus on the treatment of water and waste water
- 4) Understand the key principles of water and environmental quality
- Identify the societal context relevant to the water and environment, and comprehend the different scales and key drivers applicable to water and environmental engineering

ILOs: skills

Our graduate is able to:

- 1) Apply key computational methods related to water and environmental engineering
- 2) Understand relevant experimental methods and data analysis processes, including the use of data archives
- 3) Comprehend uncertainty and different orders of magnitude related to the measurements, data analysis and modeling
- Recognise and analyse the main components of waterand environment-related planning, implementation and management processes, and use related basic project skills

- 1) is motivated and has a desire for problem-solving
- 2) Thinks in a comprehensive and critical manner about his/her work and field
- 3) Maintains a multidisciplinary and -sectoral view related to water and environmental engineering
- 4) is able to work as a part of a team and has relevant skills for interaction and communication
- 5) Promotes a sustainable and functioning society



Our graduate is able to:

ILOs: knowledge

- Recognise the key components and management systems in water and environmental engineering, and understand the relevance of sustainability for the field
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ILOs: skills

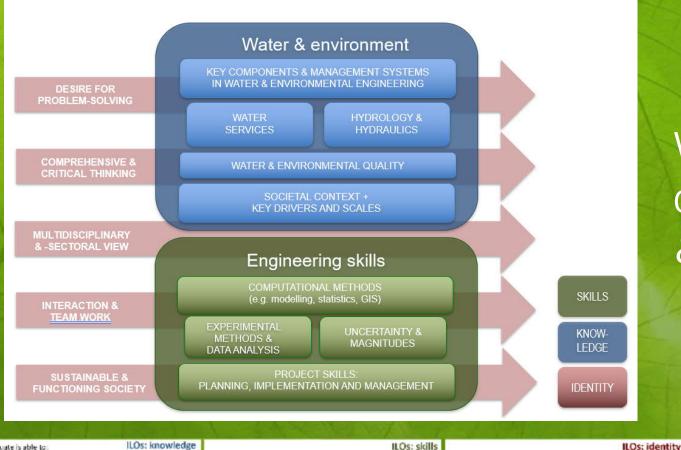
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ILOs: identity

Our graduate:

(i.e. general working-life skills)

- 1) Is motivated and has a desire for problem-solving
- 2) Thinks in a comprehensive and critical manner about his/her work and field
- 3) Maintains a multidisciplinary and -sectoral view related to water and environmental engineering
- 4) Is able to work as a part of a team and has relevant skills for interaction and communication
- 5) Promotes a sustainable and functioning society



WAT comptences & ILOs

(i.e. our quality promise for you and our field)

Our graduate is able to:

ILOs: knowledge

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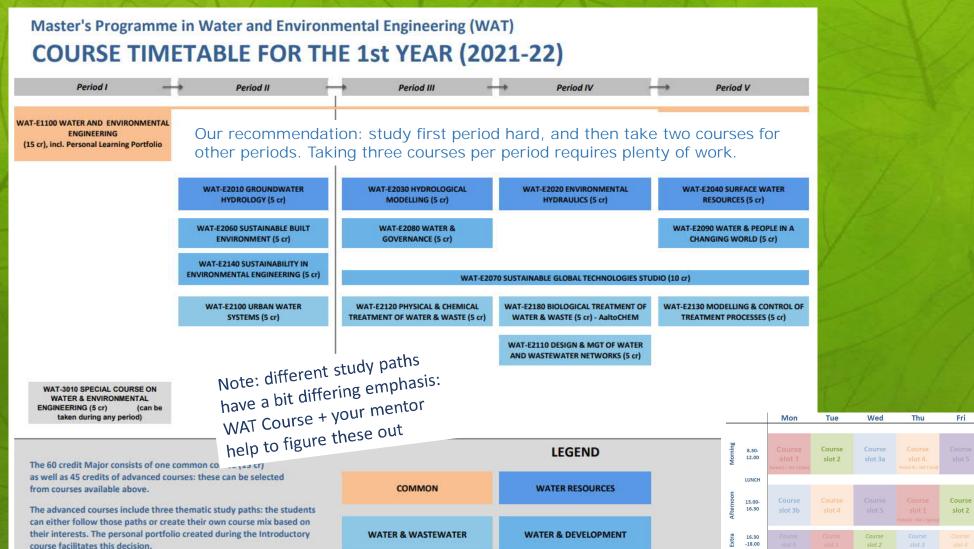
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ILOs: skills

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WAT COURSES: SCHEDULE

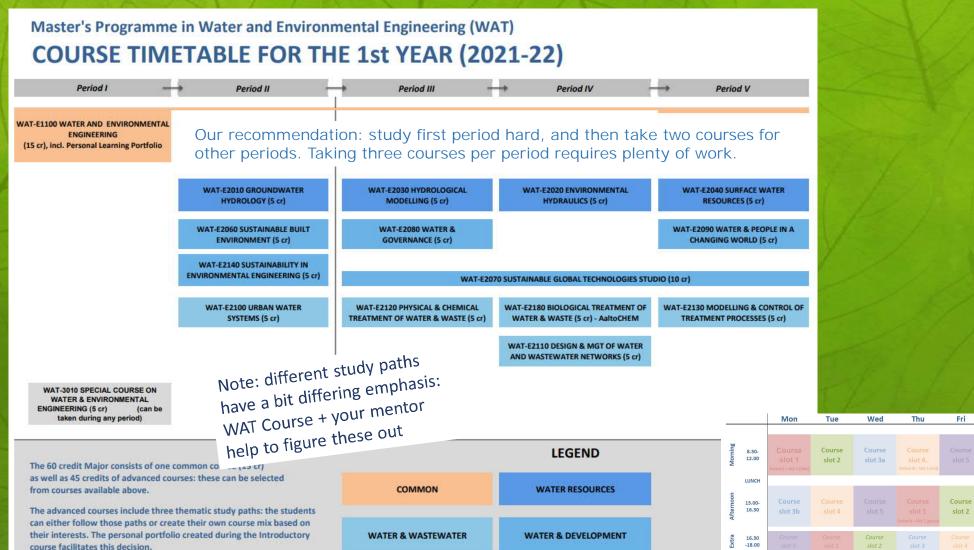
The thickness of the course is indicative for credits / period.



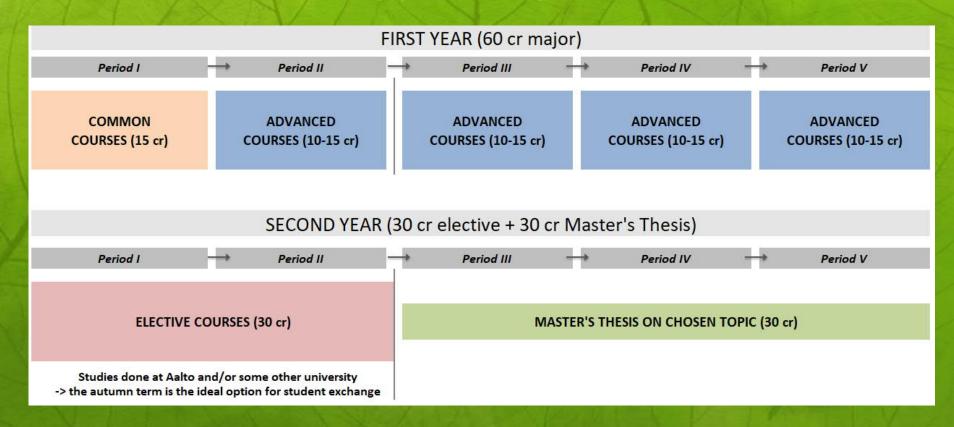
	\$-4-2-J33	Mon	Tue	Wed	Thu	Fri
Morning	8.30- 12.00	Course slot 1 Period II = Slot 3 (blue) Adva	Course slot 2	Course slot 3a	Course slot 4. Period III = Slot 1 (red)	Course slot 5
_	LUNCH	Advanced courses planned so that you can take any course combination without major overlaps				
Afternoon	13.00- 16.30	Course slot 3b	Course slot 4	Course slot 5	Course slot 1 Period II = Slot 2 (green)	Course slot 2
Extra	16.30 -18.00	Course slot 5	Course slot 1	Course slot 2	Course slot 3	Course slot 4

WAT COURSES: SCHEDULE

The thickness of the course is indicative for credits / period.



WAT 1st + 2nd YEAR



Leave Aalto (but do come back)!
Our programme structure provides you a
perfect chance to go for study exchange
during 2nd year: make use of it!



- How does WAT sound?
- Do you already have some ideas on what advanced courses to take?
 - Anything unclear?

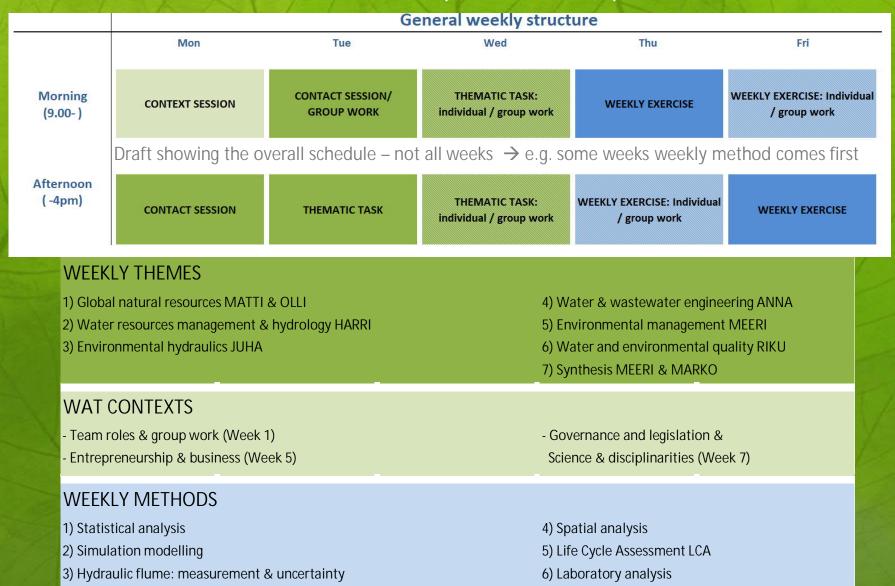
...and yes: we start with a bang!

- First period (September-October) requires full-time studying from Monday morning till Friday afternoon
 - → Not all of it Contact Sessions, but part of it group work and part individual studying
- 1) Learning to know each other + our field
- 2) Helps you to plan your advanced courses, too!





WAT Course (WAT-E1100)



Sustainability Entrepreneurship & business Multi-**WATER &** & inter-**ENVIRONMENTAL...** disciplinarity Key contents in our field: Governance global resources, water resources & hydrology, & legislation environmental hydraulics, water & wastewater ...ENGINEERING Key methods in our field: e.a. modelling, Group statistical analysis, laboratory analysis, flume, work & Project & spatial analysis as well as general interaction planning skills problem-solving approaches skills ...IN A BROADER CONTEXT

...and yes: we start with a bang!

- First period (September-October) requires full-time studying from Monday morning till Friday afternoon
 - → Not all of it Contact Sessions, but part of it group work and part individual studying
- 1) Learning to know each other + our field
- 2) Helps you to plan your advanced courses, too!

Questions?

More on Monday







Soon we'll start the presentations, but before...

Let's get you a Mentor!

Akva Seed Person picks a letter from A-E (starting from Group 1)

→ Now your group has a mentor; get into groups and introduce yourselves to each other (~10min)!

Mentor: who you are and what you do at WAT

Students: who you are and why you came to WAT

You can also discuss about our courses (particularly those that your mentor is involved in)

Group Presentations

10 min per group
 → Introduce your own group;
 questions & comments from the audience also fine!

- * Names & background of your group members
- * Your existing expertise from our field
- * Your expectations for WAT Master's Programme

HOW & WHO ARE YOU?

- With your group:
 discuss three key points you have learned about yourselves today
- → About your existing expertise
- → About your expectations for WAT

Questions, comments?

Then for break and then Portfolio session



WAT ORIENTATION DAYS 7.-8.9.2021

Tuesday 7.9.

Wednesday 8.9.

Both days start in Otakaari 1M (Undergraduate center) @ Lecture hall U1

9:00 ap.

INTRODUCTION TO WAT

@ Otakaari 1M, lecture hall U1

- Welcome + introduction Marko & Meeri
- Forming WAT Mentor Groups + instructions
- -> Your group stays the same for the entire Master's Programme
 - Study tour in groups (10.30-)

10-minute visits ('rasti') @ Water Building introducing WAT personnel & research activities + AKVA student association

Group lunch

Starting your group work

Virtual orientation 14.00 in Zoom

only for students unable to attend orientation days @Otaniemi https://aalto.zoom.us/j/68972975042

- Welcome & Introduction to WAT
 - Portfolio process in WAT
- Getting your mentor groups

GROUP WORK

-> Each group independently in your chosen location or virtual room; aim to get to know each other and create a Group Presentation.

Tasks for group work:

- 1) Introductions: each student's background
- 2) Recognition of your existing knowledge & skills
 3) Expectations from the Master's studies + career plans
 -> These together = Group Presentation

 Also take a Group Photo (or a screen shot if online) and include it into your presentation!

Group lunch

INTRODUCTION TO STUDENTS

@ Otakaari 1M, lecture hall U1

13.00- Introduction to WAT
14.00- Meeting your mentor & Group work presentations

Wrap-up: how does WAT and its students look like?

15.00- Portfolio process in WAT

16.00 Akva-kahvit / Akva Coffee

@ outside Water Building, Tietotie 1E

(Aalto Day One 13.15)



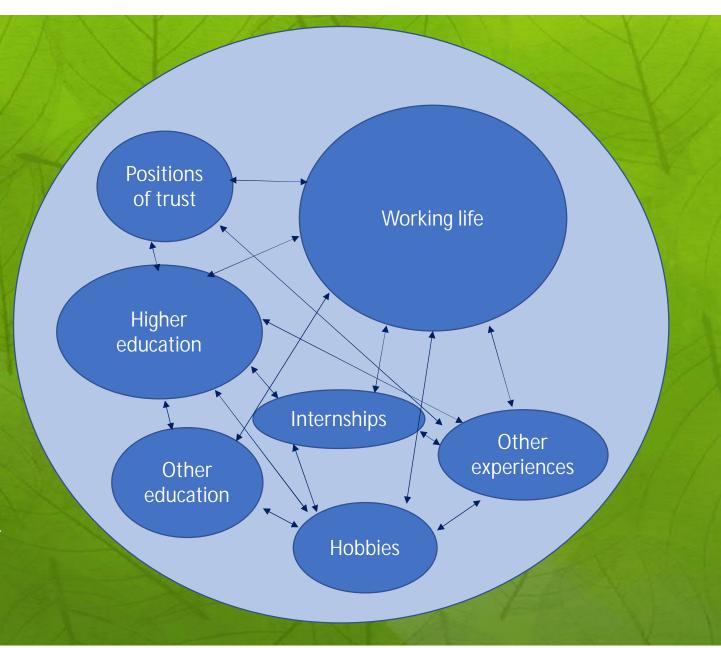
Portfolio and mentoring process

- Facilitating you to recognise and visualise your learning
- Supporting your career planning in WAT programme

What kind of experiences affect your identity as a WAT graduate, and also your skills and knowledge?

The Master's programme offers methods and scientific background from WAT field and means to apply them in practice. Is that enough for your fufure career as a WAT graduate?

→ How to make good use of all your experiences in life?



Personal Learning Portfolio

 Aims to combine your previous skills, knowledge and values with your master's education: You do it for you!

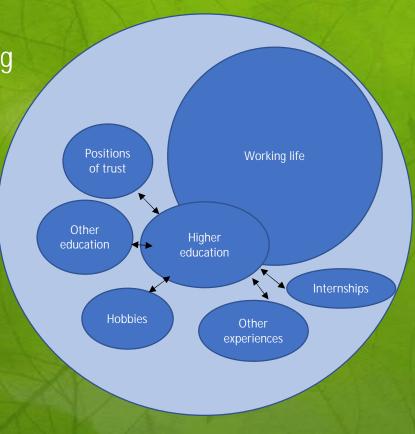
→ For recognising your competencies and identity as a WAT graduate and for facilitating your career-planning

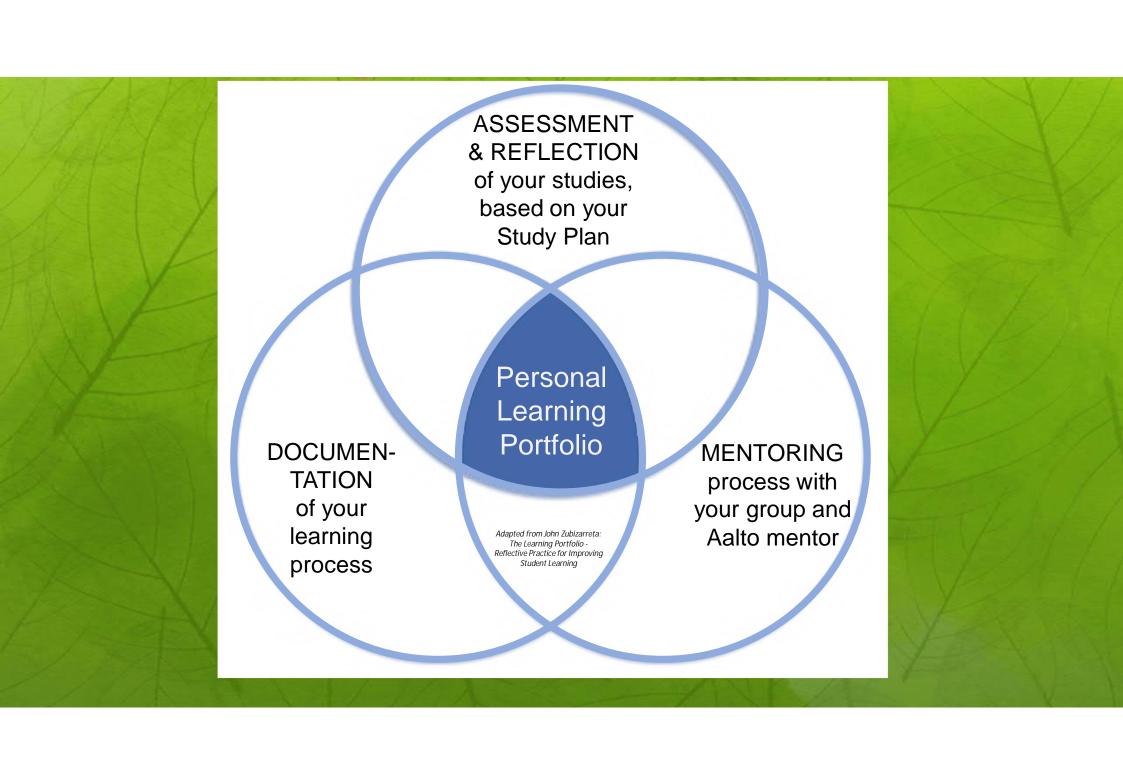
Consists of compulsory parts:

- Creating your own learning portfolio
- Meetings with your mentor-group for peer support
- Meetings with your Aalto-Mentor
- Attending the WAT Synthesis session in May 2021
- Attending the Master's thesis process 2021-2022
- Also optional parts highly recommendable
 - Attending the Aalto Career Services activities
 - Making use of Aalto PDPP-course

More in MyCourses:

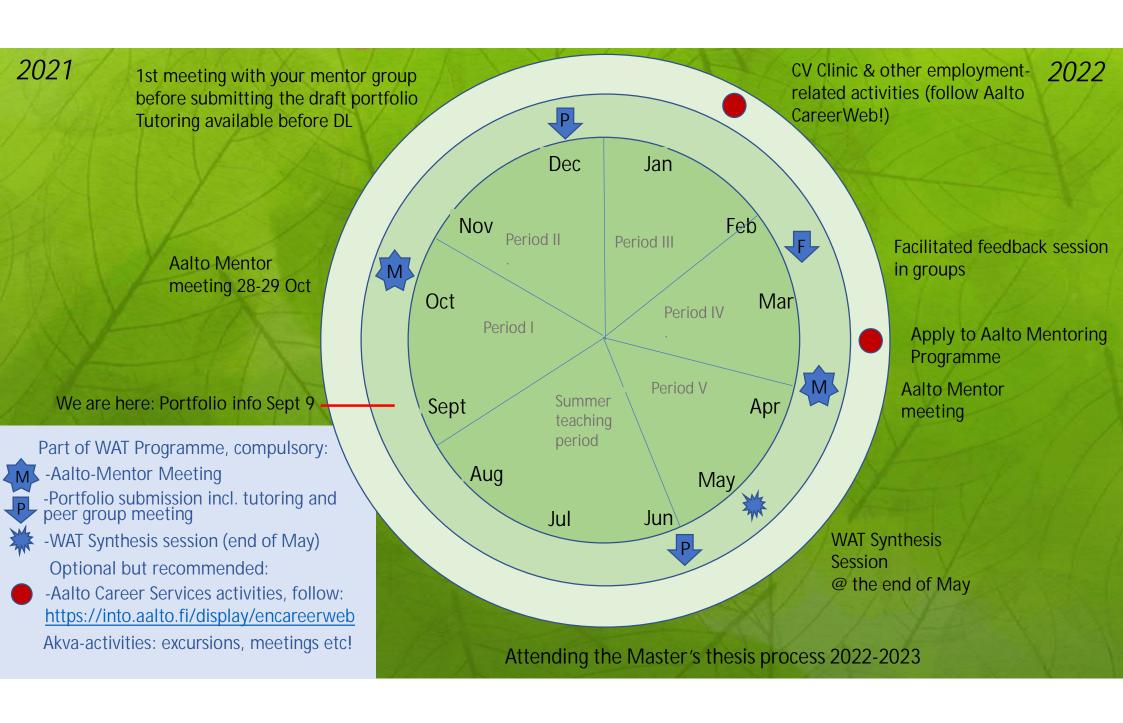
https://mycourses.aako
fi/course/view.php?id=3





Portfolio in practice

- 1. Submission of portfolio drafts twice a year = ~2-3 submissions during your Master's studies
 - Jan 2022 (feedback), June-Aug 2022 (feedback), final version before graduation
 - Tutoring on portfolio available always before the submission deadline
- 2. Feedback Session with your Mentor Group after the 1st portfolio submission (Feb-March 2022)
 - Facilitated and organized by WAT staff
- 3. Meetings with your mentor group and your WAT-mentor once/semester



Master's Thesis process in practice

Consists of:

- 1. Listening to at least one Master's Theses Seminar before you start your own thesis
 - Recommended to attend the seminars anytime during your studies to learn from other's work
- 2. Attending a pre-seminar: presenting the research plan of your thesis
- 3. Attending a finalising session to review your almost-ready-thesis
- 4. Presenting your thesis in a Master's Thesis Seminar

Seminars arranged monthly in Teams, see schedule in MyCourses: https://mycourses.aalto.fi/course/view.php?id=34281§ion=2

