

**Minutes 172th PC-AM-meeting
Tuesday 18 January 2022, 15:45 hr.
TEAMS meeting**

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Present: H.G.E. Meijer (chairman), A. Stoorvogel (PD), J. Schut (M-coordinator), J.B. Timmer (B-coordinator), N. Apeldoorn (Abacus), A. Schopbarteld (minutes), L. van Dissel, K. Proksch, S.J. Geerts, L.S. Lanting, N. Muntendam, B. Manthey, F.P. Schuller

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Absent (with notice): -

1. Opening

The chairman opens the meeting at 15:47

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2. Minutes 171 meeting 16 November 2021

Page 4 line 34 has a spacing wrong. General point that action points should be phrased less "harsh"

Action points:

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394 Remains on the list.

An email has been sent to students but there are few responses.

416 Can be removed from the list.

The names have been provided to the PD.

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417 Remains on the list.

Again, an email was again sent to staff in Dutch. The PD has not talked to the teachers yet. Shall remain on the list since awareness about talking English has not been created yet among module 3 staff members.

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421 Remains on the list.

The learning goals for Mixed-Integer Optimization have not been sent yet; this action point shall remain on the list. Correspondence via email will be sufficient.

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422 Can be removed from the list.

On the 18th of January, a meeting with the lecturer of Scientific Computing has been held. The M-coordinator has offered support to help with improving communication. The PD has also talked to the lecturer in question, and she has ideas on how to improve. The PC concludes that awareness has been created.

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423 Remains on the list.

M-coordinator suggests having an additional meeting to ensure an improvement of quality for the Spatial Statistics course.

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424 Will be changed to 424a, removing the complaint about the Canvas page, keeping the question about how the LaTeX TA is selected.

The B-Coordinator will have a meeting with the project coordinator to discuss how the LaTeX TA is selected. Based on the email the B-Coordinator has compared the Canvas pages for calculus of this year and the year before. There are no differences between these pages. In the last minutes, there was a mention that the 2019 Canvas page was different, she asks whether the PC wants her to check this page. The PC concludes that the complaint is a one-off instance and does not have to be further investigated unless it reappears next year.

425 Can be removed from the list.

The chairman has spoken to the lecturer before sending the email to the examination board and later he has explained the contents of the email to the chairman of the examination board in person.

426 Can be removed from the list.

Proksch spoke with A. Betken and J. Schmidt-Hieber, they agreed R seems separate from the rest. Statistics II and how to include R more in this course have been discussed. This will be done in a joint effort.

427 Can be removed from the list.

This action point has been phrased wrong since the new statistics course is not part of the next academic year (remove next academic year). It is part of the coherent discussion on the curriculum and thus does not have to be further investigated.

428 Can be removed from the list.

An email has been sent.

3. Announcements

Apeldoorn is not in the mailing list yet.

Action point: Ask Mirande vd. Kooij to add Apeldoorn to the mailing list. (chairman)

4. Advices / correspondence

- Advice on new curriculum BSc AM

The PD mentions that a lot of discussions are ongoing surrounding the projects. Applications should be visible/obvious within the program and courses. There must be a good explanation for students on how fundamental courses like linear algebra and analysis are necessary, even for applied mathematicians. For the second year making projects is much easier.

The PD mentions the curriculum committee is hesitant towards the electives. They feel like in a sense there is already a lot of room for electives with the two modules of minors where you can feel where your interests are.

The PC also suggested that during module 11 students should be able to choose two courses, one SACS and one MOR course. The PD spoke to the people from SACS and they were clear that they suggest the PDE course and have a hard time coming up with an alternative. They feel strongly that the bachelor is intended to have the fundamentals taken care of.

The chairman says that while he can agree with this the possibility of electives was an

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5 unanimous view in the previous meeting. The chairman is surprised that the talks remained within the curriculum committee since according to him, ideally, this committee could also discuss with a lot of other people. He says the curriculum committee can be challenged to come up with an alternative proposal including electives. The minor is not per se about mathematics; the minor is not choice regarding mathematics, which is what the PC wants to achieve. The PD states that with half a year of minor and possibly a module of electives, the choices made in the bachelor can possibly limit a student's choices in the master and he wants to prevent this.

10 Lanting does not see how choices made in the electives would necessarily restrict the opportunities in the master. A course like PDE is not a compulsory course for SACS, a course like systems theory would also be interesting for students going into SACS (since systems theory is not included in the draft bachelor curriculum).

15 Proksch brings up that it is very hard to come up with good, in-depth research topics for the bachelor thesis. This is because more often than not interesting topics require knowledge not included in the bachelor. Electives might allow access to more interesting topics and prepare students for their research work.

20 PC members find it hard to comment on the draft curriculum since there is no list of topics discussed in the courses. The previous draft was not precise enough. The PC asks for an update on the state of the draft curriculum.

The chairman summarizes the discussion on electives; the PC still sees a possibility for electives in module 11 while the curriculum committee struggles to think of such possibilities. If a new draft were to come in without this choice, the PC requests a written argumentation for this design choice.

25 The curriculum committee agrees with the need for an optimization course. This course will be placed in module 6 and will be included in this module's project.

The PD has had a discussion with the PD of Applied Physics about the double degree program with physics, they both still see an opportunity in creating a double degree program considering the new TOM model.

30 The PD states that there must be a prefinal version of the new program around the end of February as the implementation will require a lot of time.

The chairman suggests the PD plans a meeting with staff members so they can give feedback on the new curriculum and will later support the made changes more. A formal meeting has not been planned but this is certainly something the PD wants to do; he is unsure on what the best platform would be i.e., one large meeting or smaller more manageable groups.

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- Mail to B-coordinator regarding module 1
 - Mail to Examination Board-AM about examination Probability Theory Spring 2021

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- Mail from rector requesting input on UT Mastervision

45 Geerts thinks challenge-based learning is a step in the good direction but sees a lot of hurdles in the implementation. The email is very vague and not concrete in the implementation. As the master is filled with compulsory courses, Geerts sees little room to have 30% of the masters becoming TBL sessions. Geerts thinks it might be a good idea to implement these courses at a faculty level instead; interdisciplinary courses organized by the faculty that mathematics students can partake in. Geerts thinks we should be open-minded towards courses like this, it might be a nice addition and a good

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idea. He thinks it is still challenging and would not work on courses with only mathematics students (considering the small group size).

5 Van Dissel thinks the idea behind challenge-based learning is interesting but also has questions regarding the implementation.

Lanting sees a lot of nice promises, but a lot of things do not apply to mathematics students. Lanting is reluctant to implement this in our program unless it is elaborated that it has a clear benefit.

10 Muntendam agrees with the other students.

In summary, the AM students think this might be a nice addition but see a lot of challenges in the implementation unless it is implemented as an elective. They also see challenges in getting groups large enough.

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The PD wonders how much mathematical modeling can be implemented in these courses since they are supposed to be interdisciplinary. For instance, what if you have a generic problem like “how to reduce carbon emission” done by a group of 6 with 1 mathematician? Will this project have enough mathematics in it? He then argues that if a lot of courses will have this structure there might be a lack of actual mathematics in the master. He also doubts these topics can go into enough depth to provide the necessary mathematical material.

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The chairman’s position is as follows. Just before corona started the chairman attended a workshop on challenge-based learning, including the ideas and philosophies surrounding it. The course included implementation issues from other universities. One of which is the lack of control by the programme in setting the learning objectives in these courses. In both bachelor’s and master’s, there is a list of learning goals students must complete in order to be qualified mathematicians. If challenge-based learning was implemented this would disrupt these learning goals. He sees the opportunity in having challenge-based learning as an alternative to an internship. The ideal situation would be students seeing something outside of UT (the way the internship is phrased). The students should be able to function in a different environment. He considers a multidisciplinary team as a sufficiently foreign environment and challenge-based learning is supposed to be a real-world application. In this way, it might be a very motivating project for students. If it was implemented in this way, the chairman thinks the idea is nice, if not he is completely opposed to the idea.

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The chairman agrees with the point Geerts made; these courses should be provided from a higher-up level.

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The PD states that it might be possible that students take this as a 5-10EC elective on challenge-based learning, combined with 50 EC mathematics. The PD says that combining the internship and not having control over the amount of mathematics in these projects opposes him to the idea of challenge-based learning. The chairman mentions that in other universities you can only participate in challenge-based learning if you have done sufficient coursework to bring your disciplinary skillset.

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Manthey also sees that the place of challenge-based learning should be in the internship if it were to be implemented.

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On February third there is a meeting where the challenge-based learning document will be discussed. During this meeting, it would be nice if the PD had the opinion of the PC at hand. And since the PD agrees with the PC it would be good if there was a coherent opinion put forward by the entire program. The PD is very hesitant to impose the amount of challenge-based learning needed in a program.

The chairman will use this input to formulate a draft advice and incorporate comments before sending it out at the end of the week to both the PD and vice dean of education of EEMCS. The PD mentions that this matter will already be discussed within the faculty next week.

Action point: Formulate the opinion of the PC regarding CBL in the master vision and send this to the PD and vicedean.

5. Bachelor Evaluations

- Module 1 panel report 2

Will be discussed in the next meeting when the UTSEQ has been received.

- Module 2 panel report 1

Geerts finds the fact that students must watch a recording in a lecture room weird. The chairman agrees but does not think this should be discussed. Geerts disagrees since this might continue in the future. He thinks that if there are physical sessions, then there should be physical lectures.

Action point: Talk to the lecturer of Linear Structures II about why he decided to watch recorded lectures in a lecture hall. (B-Coordinator)

There has been made a comment that the book for Linear Optimization is continuously not used. By students, though it is expensive. The PC states that the lecturer should either opt to use the book or defend not using the book in a PC meeting.

Action point: Invite the teacher of Linear Optimization to the next meeting to explain why he insists on using the Linear Optimization book in his course though students can do without it. (chairman)

- Module 5 panel report 2 plus reflection module team

Will be discussed in the next meeting when the UTSEQ has been received.

- Module 6 panel report 1

No comments were made to this panel meeting

6. PC-AM annual report 2020-2021

There is a typo on the top of page two, master EEM -> master EER. (Has been changed on the spot)

- 5 Geerts suggests changing Giving advice to giving consent on page 3. The chairman states this does not feel right.

10 The B-coordinator makes a comment to the last bullet point on page 4. The point is not related to this course but to the bachelor's assignment. The B-Coordinator will check the minutes and forward the correct information.

15 Schuller comments on page 4, course evaluation first bullet point. He suggests to change "There was a considerable dispute on the language on which the exam is conducted" to "there was a considerable dispute on the language used during an exam".

With two typos changed and a factual correction by the B-Coordinator that will follow, the PC agrees to the draft and this annual report will be published.

Action point: Adopt the changes to and publish the PC-AM annual report 2020-2021 (chairman)

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7. Mastermath

- Minutes OC meeting 9 April 2021
- Draft minutes OC meeting 8 November 2021

- 25 There is no factual incorrectness in these minutes.
There are no questions, points, or comments added to these minutes.

8. AOB / Questions before closing the meeting

30 Late document: advice schedule EER

Manthey thinks it makes perfect sense to have a schedule like the one suggested. He is unsure about the way this specifically is formulated but the idea makes a lot of sense.

- 35 The question is whether the PC agrees to this schedule
The PC agrees to gives this a try.

Action point: Put the reply from the PC regarding the advice schedule EER forward. (chairman)

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9. Closure

Note by the PD: the response from master vision has to be done faculty-wide.

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The chairman closes the meeting at 17:25

10. Action points

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Nr	Description	Meeting	Responsible
394a	Organize that both, teachers of module 2 and students, make an overview of the workload of module 2.	20/04/2021	Lanting, Apeldoorn and Geerts
417	A follow-up to state the conclusion of action point 405	14/09/2021	PD
421	ask the teacher of mixed-integer optimization (previously optimization modeling) to send the learning goals of the course to the PC (as well as adding them to the OSIRIS page) And to check those against the ones from the Master math course Advanced Linear Programming. Correspondence via email is sufficient.	14/09/2021	PD
423	Discuss evaluation with lecturers of Spatial Statistics and ask for improvements regarding communication. To make sure the two teachers teach synchronized.	14/09/2021	PD & M-Coordinator
424a	Talk to G.Meinsma on how the TA for the LaTeX course is selected	16/11/2021	B-Coordinator
429	Formulate the opinion of the PC regarding CBL in the master vision and send this to the PD and vicedean.	18/01/2022	Chairman
430	Talk to the lecturer of linear structures II about why he decided to watch recorded lectures in a lecture hall.	18/01/2022	B-Coordinator
431	Invite the teacher of Linear Optimization to the next meeting to explain why he insists on using the Linear Optimization book in his course though students can do without it.	18/01/2022	Chairman
432	Ask Mirande vd. Kooi to add Apeldoorn to the mailing list.	18/01/2022	Chairman
433	Adopt the changes to and publish the PC-AM annual report 2020-2021	18/01/2022	Chairman
434	Put the reply from the PC regarding the advice schedule EER forward.	18/01/2022	Chairman