

**Minutes 171th PC-AM-meeting**  
**Tuesday 16 November 2021, 15:45 – 17:15 hr.**  
**TEAMS meeting**

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

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*Absent (with notice): F.P. Schuller and J.B. Timmer (B-coordinator)*

**1. Opening**

The chairman opens the meeting at 15:48

Comment to agenda: bottom of the page typo: Januaryr -> January

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**2. Minutes 169<sup>th</sup> meeting 1 June 2021**

**Textual remarks:**

**Page 1**

**Line 6**, Insert initials G.E. for the chairman

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**Page 3**

**Line 133**, "Collaboration is very hard" must be changed to "B-Coordinator admits that collaboration might be challenging".

**Line 138**, IBA->IEM

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**Rephrase action point 422:** Communication between the lecturer of Scientific Computing and students should be discussed with the lecturer for the coming edition.

**Action points:**

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394a Remains on the list, responsibility has been shifted to Lanting, Apeldoorn, and Geerts.  
*Organise that both, teachers of module 2 and students, make an overview of the workload of module 2.*

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405 Can be removed from the list.  
*416 and 417 were inserted as a replacement. Originally: To write to the staff of module 3 about being non-inclusive in this module and that the education should be offered entirely in English.*

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414 Can be removed from the list.  
*Linear programming is a prerequisite. The module coordinator will add this to the OSIRIS page as a prerequisite. Deficiencies in this (example: double degree students) can in this case be caught up during the course by reading up on it.*

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415 Can be removed from the list.  
*The teacher for Mathematical research II will plan time to provide feedback and will take more time to answer emails from students.*

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416 Remains on the list.  
*Provide the names for action point 405 to the PD*

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417 Remains on the list.  
*A follow-up to state the conclusion of action point 405.*

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418 Can be removed from the list.  
*There are 20 international students among our freshmen.*

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419 Can be removed from the list.

*The email by Hoeksma has been presented to the curriculum committee.*

*Programming is being integrated into the new curriculum, but final qualifications will be specified when the modelling and programming lines are specified.*

- 420 Can be removed from the list.  
5 *The reflection by the module coordinator has been received and is part of this meetings' documents.*
- 421 Remains on the list.  
10 *Ask the teacher of mixed-integer optimization (previously optimization modelling) to send the learning goals of the course to the PC (as well as add them to the OSIRIS page). And to check those against the ones from the Master math course Advanced Linear Programming.*
- 422 Remains on the list.  
15 *Communication between the lecturer of Scientific Computing and students should be discussed with the lecturer for the coming edition.*
- 423 Remains on the list.  
20 *Discuss evaluation with lecturers of Spatial Statistics and ask for improvements regarding communication. To make sure the two teachers teach synchronized.*
- 424 Can be removed from the list.  
*The textual comment has been changed. The PC has allowed the decision by the B-Coordinator to leave the letter in article 3.5d unchanged.*

### 3. Announcements

None.

### 25 4. Advices / correspondence

- Mail from PD about book Linear Optimization
- Mail to Module coordinator M8

### 30 5. EER (final version; for information)

- **B-EER 2021-2022**
- **M-EER 2021-2022**

### 35 6. Bachelor Evaluations

#### - **Module 1 panel report 1**

35 Geerts points out the comments made to the LaTeX course; he sees a possibility for improvement here. Lanting states that this course is not given by teachers but by students. The PC is uncertain about the way these students are selected and prepared, and that should be checked.

40 Next, the chairman notices that the students seem upset about the way calculus is organized, not content-wise but mainly organization. Muntendam states that the way the Canvas-site was organized in his first year (2 years before, 2019) was very clear. Something must have changed in the meantime.

45 **Action point:** *The chairman must ask the B-Coordinator how the TA for the LaTeX course is selected and prepared and why the changes on the canvas page for calculus have such a negative effect.*

Muntendam notices the Grasple diagnostic tests are mandatory every week. He states students fall behind some weeks, catching back up on others. Making a mandatory test on topics not yet studied might not be useful for these students. The PD states this is intended to teach the students a good working habit. He adds this is very important in the first quartile. Muntendam agrees to this idea.

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- **Module 4 panel report 2 + reflection M4 team**

Muntendam remarks that students seem not to remember much from collaboration. He states this is not a good sign for this course because this implies that it did not make an impact on students. Lanting states that in her memory the collaboration has always been a minor part of the project. According to her, the main objective of this course is to give feedback on the project of other students, and she sees no issue with this. The chairman summarizes that the PC concludes that collaboration is not optimal but does not seem to be harmful either.

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Van Dissel states the probability theory exam was considered too easy because a large part was copied from the sample exam. The chairman states tests must get checked by a colleague. He then states the appropriate way to approach this issue is to forward this to the examination board. The PD adds that there also was an issue with the first exam being too long (according to the students). This complaint should be included in an email to the Examination board.

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**Action point:** *The chairman must email the examination board based on the evaluation for probability theory. To investigate the examination for probability theory (both exam and resit).*

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- **Module 5 panel report 1**

Geerts reads that for the project students must look for their data set and finds this strange. Lanting states that this was introduced so students can pick a topic that interests them and show their grasp on statistics applied to this topic. According to her, a shared dataset does not apply. Muntendam adds that for him the freedom made the project more enjoyable. Lanting mentions that the dataset must be handed in beforehand, so teachers also have access to this when grading the project. The PD says this flexibility is a good thing but adds that based on your topic you might not be able to find a sufficient dataset. Both Geerts and the PD state that finding a dataset is not the objective of the project. In case students struggle with finding a dataset, they should also have access to an alternative dataset available for the project.

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The chairman states that the report states the R software is being regarded as a black box by students. He says this is not the way software should be taught. Muntendam agrees with this. "It felt like R was being used in a way that you copied over the required code and applied this to the required dataset". Proksch was not involved in the course but will ask the lecturer about this issue.

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Lanting asks about the way the reader is used. According to her, the lecturer prefers to teach statistics in a more theoretical way but this is not how the exercises in the reader are formulated.

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Muntendam states that the consensus among students is that the statistics lectures were not good. This resulted in a lot of students not following the lectures.

5 The PD summarizes that the number of comments made to this course is enough such that the PD must talk to the lecturer. This is to find out what the program wants to teach in statistics, this is also helpful for the formulation of the new curriculum.

10 **Action point:** *Proksch has to discuss the use of R in the statistics course with the lecturer.*

**Action point:** *The PD has to discuss plans for statistics with the curriculum committee for the next academic year.*

15 The panel report states that the lectures from analysis II are better than those from analysis I. The module evaluation team does not recall mentioning this and it should be the other way around. The chairman thinks the degradation in quality might be a mainly corona-related issue.

20 - **Module 8 panel report 2 + reflection teacher**

The chairman starts with the issue of Plant SIM being a large component of the project. From both the correspondence and personal discussion with the teacher for this project and the module coordinator the chairman concludes that the people responsible for the project know that something needs to be done for the next rendition of the project. From the document added it is clearly formulated what mathematics students could do, but the communication of these options is not being done optimally.

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The chairman concludes: we have created awareness of the issue and must see how this works out.

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- **Module 12 panel report 2 + reflection M12 team**

The chairman brings up the issue of the mental health of students. In the news, the issue is brought up that a large portion of students has the feeling of being alienated from others. According to the chairman, this issue is happening in Twente too. He states it is extremely important to keep our students connected and asks the PD how the program is going to try and keep our students psychologically healthy. The PD states that the best way of doing this is keeping most educational activities physical. Having lectures and so on, on campus, also outside office hours, helped a lot in the issue this year. He notices a very different attitude from students this year compared to last. The program is also in constant contact with the study advisor to see whether there are students who are struggling.

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The chairman states that as a teacher he hears opposite noises coming from the university. Containing explicit requests from the timetable team that due to capacity issues at least 20% of contact hours should be moved online. In module 6 he did not do this, trying to do as much hybrid as possible. This is not something the chairman is hearing from the educational management team. Instead, hearing explicit requests to stay at home.

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5 Lanting states that the alienation is mainly due to mathematicians not being able to enter the university for any courses. Whereas other studies might be able to enter due to practical sessions. A study session once a week might be very beneficial. The PD agrees and states that in case of a lockdown students should be able to meet physically at least once a week.

10 *The PD states he will more proactively stimulate physical education instead of moving things online.*

## 7. Master math

### - Evaluation Master math courses

15 There are seven courses where mathematics students from UT participated. Both Lanting and Geerts attended this evaluation.

20 Geerts mentioned there were not a lot of comments on the seven courses. The evaluation spoke mainly about the lowest-scoring courses. One of the courses discussed was Mathematical Bifurcation Analysis. They discussed the issues and solutions. The evaluation concluded that the issues for this course were mainly corona related. Geerts finds this very naïve.

25 For the other courses, there were no real comments if Geerts remembers correctly. Lanting supports this (although she was only there for part of the meeting).

### - Agenda OC meeting 8 October 2021

### - Minutes OC meeting 8 April 2021

### - Mail: your opinion on different teaching formats that emerged from the corona pandemic (with attachment)

30 Manthey summarizes the email shortly. A lot of formats were used during the lockdown. Name for example recorded lectures, a lot of effort was put into these. The main question is which parts students enjoyed and can be kept.

35 Geerts states that everything physical with recordings next to it is optimal. The recordings are intended for students who for whatever reason cannot attend the physical lecture. The chairman agrees with this. As a teacher, he prefers to have his tutorials physical instead of his lectures if he must choose between the two. For him, hybrid tutorials are the second best. The PD says for one-way lecturing (the teacher talking and students listening) the recordings are very good. For tutorials, it is a lot better to have these physical. The M-Coordinator agrees with everything being said here. Manthey will forward these comments since he is part of the Master-math team.

## 8. Discussion Draft AM Curriculum

45 The Chairman opens the discussion by stating this curriculum is a draft. He summarizes the curriculum draft as three pillars: a linear algebra/statistics line, an analysis line, and an application/academic skills line.

- Module 7 and 8 and 12 are unchanged.
- Module 11 no longer contains electives.

- The PDE course is supposed to be more advanced than its predecessor.

5 Geerts thinks there should be more student input to the new curriculum. Speaking to other students he says they feel like the current draft is certainly an improvement to the way things are now. Geerts adds that he feels like the subjects in the new curriculum have a clear distinction between being, on one hand, focused on fundamentals while on the other hand consisting of mainly projects. He sees more opportunities to find a middle ground and integrate these projects into the courses. Geerts has a feeling the draft is mainly made by teachers who enjoy the fundamentals, while some students might enjoy the curriculum more if applications were better integrated into the theoretical course. Moreover, he feels that the specific character of the programme, i.e. applied mathematics, is lost by the more fundamental view of the teachers designing the new curriculum, the applied part is missing. *This opinion is also formed since the PC has little insight into what the courses will entail.*

15 The chairman points out that in module 3 roughly 10EC has been removed, in place of physics now comes more analysis and other mathematics subjects. The chairman thinks that is a good thing for the math track, Geerts is not sure about this.

20 The PD states that a discussion is ongoing about the way the projects can be integrated into modules. For example, as a project surrounding vector calculus, a connection to electricity and magnetism can be made, to intuitively see where this mathematics will come in and is relevant. The PDE course might also contain some numerics.

25 The PD states that there is no intention to deviate from the applied character of the program and that the curriculum committee must still work out the links between the project and the courses.

30 According to the students of the panel, the first semester looks like a large theoretical block. It is a challenge to integrate the applications into this with the little mathematical knowledge students will have at this stage in their education.

35 The chairman states that large consideration was given to the academic skills that students should obtain during the project. He feels like some of these academic skills should be separated from the project, items such as programming. He states programming is sprinkled throughout several projects. According to him, having a definite programming course split from projects would be beneficial and will show that programming is an individual component for every student. The PD and the curriculum committee fear that this will add a lot of small 1-2 EC subjects.

40 The chairman comments on the fact that module 6 would disappear in its current form, and he finds it strange that the ODE course is moved to the middle of the first year.

- One is that there is no communication with teachers whether they think the new place of their subjects in the curriculum is an appropriate place. As a personal recommendation, the chairman states that the design of a new curriculum should not be just made by a committee but supported by many people.
- Secondly commenting on the place of differential equations which is according to him too early in the curriculum.

Manthey comments that it would be beneficial and perhaps achievable to have a small item on machine learning in the statistics line. The PD and the chairman agree this is a consideration looking at the data science master and the research interests of staff members. The PD states the curriculum committee wants to incorporate this.

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Manthey and Uetz think optimization comes too early in the program. As a solution, the PD proposes exchanging Linear Optimization and Numerics (Manthey thinks this is a step in the right direction but still too early). This has the advantage that Optimization comes later and Numerics is put next to Differential Equations again -which allows for a similar construction to the one we currently have in module 6.

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Manthey also feels that Optimization is being squeezed too tightly. There is a lot more room created for statistics and other things than in the current curriculum. Optimization used to be an 8 EC course and now the current course is the only Optimization course in the programme. The PD states that when Numerics and Optimization will get exchanged (putting optimization in the same module as statistics II, which might contain aspects of machine learning) there might be a possibility of training a neural network during the project. In this way, the project will have a component of optimization as well. Manthey disagrees with this argument because this is on top of optimization, not extra room for optimization.

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The PD wants to have at least some analysis course in the second year due to the more mature topics discussed, and he sees an opportunity in changing modules 3 and 4. The chairman agrees with this, there is already experience with this since this was originally already the case.

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The chairman once more asks the students to bring their point of view. Apeldoorn adds to the point that the chairman made that students should also be involved in this new curriculum.

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The chairman specifically states that the curriculum committee should look into the prerequisites for courses and teachers should be approached what they think about the new curriculum and the position of their course within the program.

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Apeldoorn sees a problem in the double degree program. He states there used to be a lot of overlap in module 3 with physics and now there is none. He asks how the curriculum committee plans on doing this. Lanting adds to this stating she thinks the double degree applied physics-mathematics is no longer possible in the current state of the new curriculum (mainly due to the low overlap in the third module).

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Lanting states that she would like to see at least some form of choice in module 11. The chairman proposes the following, two electives for mathematics of operation research and two electives for analysis. He the proposal is extremely clear that the curriculum committee wants the students to pick one course for analysis and one for operation research. After a discussion, the PC votes unanimously in favour of at least a form of electives in module 11.

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Geerts thinks that calculus and analysis should remain separated, perhaps better integrated into each other but still separate EC. The chairman states this is an eternal discussion for every mathematics program, no conclusion was given on the matter.

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5 Geerts received explicit request to move complex function theory to module 11 and have module 12 be just mathematical reflection and the thesis. The PD talked to the teacher of reflection; this is something that is being investigated. Moving Complex function theory to module 11 with still a small part of reflection and have module 12 be just reflection and the thesis.

Manthey wants to have fundamentals first, analysis from the beginning.

10 The chairman wants that the feedback from a project gets incorporated into the next project. This is because students hardly look into the feedback received on projects.

**Action point:** The chairman collects these views and forwards them to the PD.

## 15 9. AOB / Questions before closing the meeting

15 The chairman has two questions. One is pertaining to double degree AP-AM students. They have rostering problems. They received a reply to one of their emails, suggesting they should figure it out themselves, and the chairman is disappointed by this reaction. He says that there should at least be some attempt to try and streamline the schedules. He asks the educational management team to start communicating with applied physics to do something about the reoccurring issues.

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The chairman states that during one of his lectures in module 6 a student approached him stating he was the first lecturer to impose the requirement that students talk English in one of his classes. He states the program should do something about the attitude towards talking English in classes. The PD finds this odd because talking English in classes is being communicated clearly according to him. The chairman says that if within half a year nothing has changed, he thinks it is better if the program goes back to being Dutch.

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30 The chairman also puts forward that the study association has sent some educational-related emails in Dutch, and this should not happen again in the future.

The chairman specifically asks the PD to be aware of the language problem within the programme.

## 35 10. Closure

The chairman closes the meeting at 17:39



## Action points

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
416	Provide the names for action point 405 to the PD	14/09/2021	Chairman
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 modelling) 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.	14/09/2021	PD
422	Communication between the lecturer of Scientific Computing and students should be discussed with the lecturer for the coming edition.	14/09/2021	M-Coordinator
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
424	Ask the B-Coordinator how the TA for the LaTeX course is selected and prepared and why the changes on the canvas page for calculus have such a negative effect.	16/11/2021	The chairman
425	Email the examination board based on the evaluation for Probability Theory. To investigate the examination for Probability Theory (both exam and resit).	16/11/2021	The chairman
426	Discuss the use of R in the Statistics course with the lecturer.	16/11/2021	<i>Proksch</i>
427	Discuss plans for statistics with the curriculum committee for the next academic year.	16/11/2021	PD
428	Forward the views of the PC on the draft curriculum to the PD	16/11/2021	The chairman