

Assessment report
Limited Framework Programme Assessment

Master Mathematics

Vrije Universiteit Amsterdam

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1. Executive summary

In this executive summary, the panel presents the main considerations which led to the assessment of the quality of the Master Mathematics programme of Vrije Universiteit Amsterdam. The programme was assessed according to the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, published on 20 December 2016 (Staatscourant nr. 69458).

The panel appreciates the programme objectives to educate students broadly in the mathematics discipline, to familiarise them in-depth with theoretical and practical knowledge of advanced mathematical subjects, to acquaint them with both the foundations and applications of mathematics and to teach them research skills and general academic skills.

The panel considers the Domain-Specific Framework of Reference to be an appropriate description of the mathematics discipline and of the standards and requirements graduates of both bachelor and master programme have to meet. The panel welcomes the efforts of the joint Mathematics programmes in the Netherlands to have drafted this Framework. The objectives and intended learning outcomes of this programme meet the Framework and, therefore, correspond to international standards set for the discipline. The panel proposes to add ethical awareness to the intended learning outcomes, this being specified in the Framework.

The panel notes that the collaboration with University of Amsterdam will soon become less intensive, but that students are still allowed to take courses at this university on an individual basis.

The programme intentions to educate students either to proceed to PhD trajectories or to find positions in the non-academic, professional field are supported by the panel. The panel is positive about the Education track being offered, but notes that only few students take this track.

The intended learning outcomes of the programme are in agreement with the programme objectives, are comprehensive and are in accordance with the master level.

The panel regards the influx of students to be limited and advises to try and raise the number of incoming students. The number of students may rise as a consequence of rising numbers in the Bachelor Mathematics programme. About 58 % of these students tend to choose this master programme. The panel approves of the admission requirements and procedures of the programme.

The curriculum of the programme matches the intended learning outcomes. The panel regards the curriculum to be appropriate, students in effect being taught in-depth advanced mathematics subjects in the track chosen. The curriculum includes training in research skills and general academic skills. As the number of tracks offered in the curriculum is quite extensive, the panel advises to reconsider the curriculum design, addressing both the tracks to be offered and the balance of fundamental and applied mathematics. The panel also recommends to strengthen the subject of ethics. The panel is positive about the Master seminar and the Scientific writing in English course. Mastermath is also positively regarded, as it offers a wide range of courses in various fields to students. The panel proposes to make the curriculum committee permanent.

The staff lecturing in the programme have solid research backgrounds in the fields they are lecturing and are motivated teachers. Their educational capabilities are up to standard. The panel notes the appreciation of lecturers by students. As the work load of lecturers is rather challenging, the panel welcomes extra staff being recruited.

The educational concept and study methods in the programme are effective. The panel applauds the intensive and effective study guidance by the academic advisor. The panel considers the material facilities for the programme to be adequate, in particular after the relocation to the new building. As some of the Mastermath courses have become more challenging, the panel suggests to discuss this with Mastermath management. As the student success rates could be improved, the panel proposes to monitor these and to hold exit interviews on the reasons for students to leave.

The panel approves of the examinations and assessment rules and regulations of the programme, these being in line with Vrije Universiteit Amsterdam and Faculty of Science policies. The panel is positive about the position and the activities of the Examination board. The panel considers the measures taken by the programme to assure the quality of examinations and assessments to be appropriate. The panel approves of the regulations regarding the Mastermath examinations and the quality control of these examinations by the examination board.

The examination methods adopted by the programme are appropriate and are consistent with the goals of the courses. The processes of marking examinations and the policies to curtail the effects of free-riding are adequate.

The supervision and assessment processes for Master projects have been well-organised. The panel, however, advises to add more extensive arguments to substantiate the assessments of the projects.

The examinations of the courses in the curriculum are of appropriate level. The panel assesses the Master projects to be up to standard. The quality of the projects varies. The panel supports the grades awarded to the projects. No Master projects were found to be unsatisfactory.

The panel is convinced the programme graduates have reached the intended learning outcomes of the programme. Programme graduates find appropriate positions close to their graduation date.

The panel that conducted the assessment of the Master Mathematics programme of Vrije Universiteit Amsterdam assesses this programme to meet the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, judging the programme to be *satisfactory*. Therefore, the panel recommends NVAO to accredit this programme.

Rotterdam, 30 September 2019

Prof. dr. ir. O.J. Boxma
(panel chair)

drs. W. Vercouteren
(panel secretary)

2. Assessment process

The evaluation agency Certiked VBI received the request by Vrije Universiteit Amsterdam to support the limited framework programme assessment process for the Master Mathematics programme of this University. The objective of the programme assessment process was to assess whether the programme conforms to the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, published on 20 December 2016 (Staatscourant nr. 69458).

Management of the programmes in the assessment cluster WO Wiskunde convened to discuss the assessment panel composition and to draft the list of candidates. The panel composition for this assessment has been based upon these considerations.

Having conferred with Vrije Universiteit Amsterdam programme management, Certiked invited candidate panel members to sit on the assessment panel. The panel members agreed to do so. The panel composition was as follows:

- Prof. dr. ir. O.J. Boxma, full professor Stochastic Operations Research, Eindhoven University of Technology (panel chair);
- Prof. dr. R.H. Kaenders, full professor Mathematics and its Education, University of Bonn, Germany (panel member);
- Prof. dr. D. van Straten, full professor Algebraic Geometry, Johannes Gutenberg University Mainz, Germany (panel member);
- Dr. ir. H.J. Prins, manager Research & Development, Maritime Research Institute the Netherlands (panel member);
- S.R. den Breeijen MSc, recently graduated student Master Mathematics, Radboud University Nijmegen (student member).

On behalf of Certiked, drs. W. Vercouteren served as the process coordinator and secretary in the assessment process.

All panel members and the secretary confirmed in writing being impartial with regard to the programme to be assessed and observing the rules of confidentiality. Having obtained the authorisation by the University, Certiked requested the approval of NVAO of the proposed panel to conduct the assessment. NVAO have given their approval.

To prepare the assessment process, the process coordinator convened with management of the programme to discuss the planning of the activities in preparation of the site visit. The site visit schedule was also discussed. In addition, the outline of the self-assessment report and the subjects to be addressed in this report were part of the discussion.

In the course of the process preparing for the site visit, programme management and the Certiked process coordinator had contact to fine-tune the process. The activities prior to the site visit have been performed as planned. Programme management approved the site visit schedule.

Well in advance of the site visit date, programme management sent the list of final projects of graduates of the programme of the most recent years. Acting on behalf of the assessment panel, the

process coordinator selected the final projects of fifteen graduates from these years. The grade distribution in the selection was conform to the grade distribution in the list, sent by programme management. The study modes of the programme were covered in the selection.

The panel chair and the panel members were sent in time the self-assessment report of the programme, including appendices. In the self-assessment report, the student chapter was included. In addition, the expert panel members were forwarded a number of theses of the programme graduates, these theses being part of the selection made by the process coordinator.

Before the site visit date, the assessment panel chair and the process coordinator met to discuss the self-assessment report to be provided by programme management, the procedures regarding the assessment process and the site visit schedule. In this meeting, the profile of panel chairs of NVAO was discussed as well. The panel chair was comprehensively informed about the competencies, listed in the profile.

Being informed by the process coordinator, all panel members sent in their preliminary findings, based on the self-assessment report and the final projects studied, and a number of questions to be put to the programme representatives on the day of the site visit. The panel secretary summarised this information, compiling a list of questions, which served as a starting point for the discussions with the programme representatives during the site visit.

Shortly before the site visit date, the panel met to go over the preliminary findings concerning the quality of the programme. During this meeting, the preliminary findings of the panel members, including those about the theses were discussed. The procedures to be adopted during the site visit, including the questions to be put to the programme representatives on the basis of the list compiled, were discussed as well.

On 17 June 2019 and 21 June 2019, the panel conducted the site visit on the Vrije Universiteit Amsterdam campus. The site visit schedule was as planned. In a number of separate sessions, the panel was given the opportunity to meet with Faculty Board representatives, programme management, Examination board members, lecturers and final projects examiners, students, and alumni and professional field representatives.

In a closed session near the end of the site visit, the panel considered every one of the findings, weighed the considerations and arrived at conclusions with regard to the quality of the programme. At the end of the site visit, the panel chair presented a broad outline of the considerations and conclusions to programme representatives.

Clearly separated from the process of the programme assessment, the assessment panel members and programme representatives met to conduct the development dialogue, with the objective to discuss future developments of the programme.

The assessment draft report was finalised by the secretary, having taken into account the findings and considerations of the panel. The draft report was sent to the panel members, who studied it and made a number of changes. Thereupon, the secretary edited the final report. This report was presented to programme management to be corrected for factual inaccuracies. Programme management were given two weeks to respond. Having been corrected for these factual inaccuracies, the Certiked bureau sent the report to the University Board to accompany their request for re-accreditation of this programme.

3. Programme administrative information

Name programme in CROHO: M Mathematics
Orientation, level programme: Academic Master
Grade: MSc
Number of credits: 120 EC
Specialisations: None
Location: Amsterdam
Mode of study: Full-time, part-time
Language of instruction: English
Registration in CROHO: 21PL-66980

Name of institution: Vrije Universiteit Amsterdam
Status of institution: Government-funded
Institution's quality assurance: Approved

4. Findings, considerations and assessments per standard

4.1 Standard 1: Intended learning outcomes

The intended learning outcomes tie in with the level and orientation of the programme; they are geared to the expectations of the professional field, the discipline, and international requirements.

Findings

The Master Mathematics programme is one of the master programmes of the Faculty of Science of Vrije Universiteit Amsterdam. The dean of the Faculty has the responsibility for all programmes of the Faculty. This master programme is part of the Graduate School of Natural Sciences and Mathematics of this Faculty. The director of the programme is responsible for the contents, the organisation and the quality of the programme. The programme director is assisted by the programme coordinator and the academic advisor. The Programme committee for the Bachelor Mathematics, Master Mathematics and Master Stochastics and Financial Mathematics programmes, being composed of equal numbers of lecturers and students, advises programme management on quality issues. The Faculty-wide Examination board assures the quality of examinations and assessments of this programme. The sub-committee of this Faculty-wide board for the Mathematics and Business Analytics programmes has the responsibility to assure the quality of examinations and assessments of this programme. A number of courses in the curriculum are offered by University of Amsterdam. The programme director meets regularly with University of Amsterdam representatives to coordinate these processes and to assure courses' quality.

The objectives of the programme are to educate students broadly in the mathematics discipline, and to have them acquire in-depth theoretical and practical knowledge of advanced subjects in this discipline. The orientation of the programme is broad, allowing students to be taught in both fundamental mathematics or applied mathematics. In addition, students are trained in research skills and in general academic skills.

The joint Mathematics programmes in the Netherlands drafted the Domain-Specific Framework of Reference for both Bachelor and Master Mathematics programmes. In this Domain-Specific Framework of Reference, the generic objectives and the generic intended learning outcomes for these programmes have been listed. These objectives and intended learning outcomes meet the international standard for mathematics of ASIIN in Germany. They also correspond to the Dublin descriptors and the Meijers' criteria. In addition, they are largely comparable to those of the Mathematics programmes of renowned universities abroad, such as ETH Zürich, KU Leuven and University of Padova.

Students are offered tracks within the programme to tailor the curriculum to their preferences. They may select one of the tracks Algebra and geometry, Analysis and dynamical systems or Stochastics in the pure mathematics field. They may also opt for the track Biomedical mathematics in the applied mathematics field. In addition, students may choose the Education or Teachers track, preparing them to become fully-qualified teachers in mathematics in Dutch secondary education.

The programme differs in some respects from Master Mathematics programmes of other universities in the Netherlands, especially through the various tracks being offered.

Students are educated to either proceed to PhD trajectories or to find non-academic positions on the labour market. The majority of the graduates are educated for the latter positions.

The objectives of the programme have been translated into intended learning outcomes. These include, as main elements, thorough theoretical and practical knowledge of contemporary mathematics and research skills in one of the fields within mathematics; knowing how to do research or address quantitative organisational or business problems; awareness of mathematics' societal role; being able to study academic literature of fields within mathematics; and communication skills.

The intended learning outcomes of the programme have been compared to the Dublin descriptors for master programmes, to establish their master level.

Considerations

The panel appreciates the programme objectives to educate students broadly in the mathematics discipline, to familiarise them in-depth with theoretical and practical knowledge of advanced mathematical subjects, to acquaint them with both the foundations and applications of mathematics and to teach them research skills and general academic skills.

The panel considers the Domain-Specific Framework of Reference to be an appropriate description of the mathematics discipline and of the standards and requirements graduates of both bachelor and master programme have to meet. The panel welcomes the efforts of the joint Mathematics programmes in the Netherlands to have drafted this Framework. The objectives and intended learning outcomes of this programme largely meet the Framework and, therefore, correspond to international standards set for the discipline. The panel proposes to add ethical awareness to the intended learning outcomes, this being specified in the Framework.

The panel observes that the collaboration with University of Amsterdam will soon become less intensive, but that students are still allowed to take courses at this university on an individual basis.

The programme intentions to educate students either to proceed to PhD trajectories or to find positions in the non-academic, professional field are supported by the panel. The panel is positive about the education track being offered, but notes that only few students take this track.

The intended learning outcomes of the programme are in agreement with the programme objectives, are comprehensive and are in accordance with the master level.

Assessment of this standard

These considerations have led the assessment panel to assess standard 1, Intended learning outcomes, to be satisfactory.

4.2 Standard 2: Teaching-learning environment

The curriculum, the teaching-learning environment and the quality of the teaching staff enable the incoming students to achieve the intended learning outcomes.

Findings

The number of students entering the programme remained stable over the years, going from 9 students in 2013 to 12 students in 2018. The number of students is expected to rise, following the increase in students in the Bachelor Mathematics programme of Vrije Universiteit Amsterdam. Only few of the incoming students are part-time students, combining the study with their work. The entry requirements for the programme are a Bachelor degree in mathematics or in related disciplines. In the latter case, students are to report adequate prior knowledge with respect to the track they are opting for. Foreign students from non-English speaking countries have, additionally, to meet English proficiency requirements.

The study load of the curriculum is 120 EC. The curriculum takes two years to complete. For part-time students, the curriculum may take longer. Programme management presented a table, showing the curriculum to cover all of the intended learning outcomes. As has been indicated, students take one of the six tracks offered, being Algebra and geometry, Analysis and dynamical systems, Stochastics, Biomedical mathematics, Education or Teachers. The compulsory components in the curriculum are the Master seminar and the course Scientific writing in English in the first year, and the Master project in the second year. The Master seminar includes the study of academic articles or books, broadens students' perspectives on the track they have chosen and develops their presentation skills. In the Master seminar, first-year students give presentations on the articles or books studied and second-year students give mid-term presentations on the Master project they are doing. In addition in the seminar, PhD students present research topics. The Scientific writing in English course is meant to teach students academic writing skills, in preparation for their Master project. The Master projects are individual research projects (36 EC for the research tracks and 24 EC for the education tracks). The track-specific parts of the curriculum consist of a number of track-specific mandatory courses and a number of track-constrained elective courses. These courses allow students to address subjects, related to the track. Quite a number of courses in the curriculum are offered by Mastermath. Some courses are offered by University of Amsterdam.

The total number of permanent staff lecturing in the Bachelor and Master Mathematics programmes, and in the Master Stochastics and Financial Mathematics programme are 41 lecturers representing 14.3 full-time equivalents of teaching capacity in total. Most of the lecturers in the programmes are staff members from the Department of Mathematics of the Faculty of Science of Vrije Universiteit Amsterdam. Nearly all staff members are active researchers in their respective fields and practically all of them have PhD degrees. About 77 % of the staff members in the Department of Mathematics are BKO-certified. Others are in the process of obtaining the BKO-certificate. All permanent staff members are BKO-certified. PhD students and postdoctoral researchers lecture in tutorials as well, having been trained for this work. They are also engaged in grading assignments and examinations, under the supervision of examiners. Lecturers meet monthly to discuss aspects of teaching in the programme. Lecturers are free to organise their lectures, as long as course goals are met. Students appreciate lecturers' capabilities and accessibility. Lecturers experience the work load as challenging.

About eight new positions in the Department of Mathematics are being created, among others on account of the Mathematics sector plan.

The educational concept is to teach students how to research and how to solve advanced mathematical problems in-depth. Study methods are lectures, tutorials, computer practical sessions, and self-study. Mastermath classes may be large, sometimes over 50 students in class. In the tutorials, students work either individually or in small groups. Students hand in homework assignments and receive feedback on these. Full-time students and part-time students may collaborate. The academic advisor meets with every one of the students in the first year and at the end of each academic year. The academic advisor counsels students on tracks to be taken and study paths to be outlined. She also advises students in case of study problems. The average drop-out rate in the programme is about 20 %. The average student success rates are 34 % after two years and 71 % after three years (last three cohorts).

Considerations

The panel regards the influx of students to be limited and advises to try and raise the number of incoming students. The number of students may rise as a consequence of rising numbers in the Bachelor Mathematics programme. About 58 % of these students tend to choose this master programme. The panel approves of the admission requirements and procedures of the programme.

The curriculum of the programme matches the intended learning outcomes. The panel regards the curriculum to be appropriate, students in effect being taught in-depth advanced mathematics subjects in the track chosen. The curriculum includes training in research skills and general academic skills. As the number of tracks offered in the curriculum is quite extensive, the panel advises to reconsider the curriculum design, addressing both the tracks to be offered and the balance of fundamental and applied mathematics. The panel recommends to strengthen the subject of ethics in the curriculum. The panel is positive about the Master seminar and the Scientific writing in English course. Mastermath is also positively regarded, as it offers a wide range of courses in various fields to students at a high level. The panel welcomes the ad hoc curriculum committee evaluating the curriculum contents, but proposes to give this committee permanent status.

The staff members lecturing in the programme have solid research backgrounds in the fields they are lecturing and are motivated teachers. Their educational capabilities are up to standard. The panel notes the appreciation of lecturers by students. As the work load of lecturers is rather challenging, the panel welcomes extra staff being recruited.

The educational concept and the study methods adopted in the programme are regarded by the panel to be effective. The panel applauds the intensive and effective study guidance by the academic advisor. The panel considers the material facilities for the programme to be adequate, in particular after the relocation to the new building. As some of the Mastermath courses have become more challenging, the panel suggests to discuss this with Mastermath management. As the student success rates could be improved, the panel recommends to monitor these and to hold exit interviews on the reasons for students to leave.

Assessment of this standard

These considerations have led the assessment panel to assess standard 2, Teaching-learning environment, to be satisfactory.

4.3 Standard 3: Student assessment

The programme has an adequate system of student assessment in place.
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Findings

The programme examination and assessment procedures are aligned with the Vrije Universiteit Amsterdam policies and the Faculty of Science policies. The examinations and assessments are governed by the principles of constructive alignment, linking the course examinations to the programme intended learning outcomes. As has been indicated, the Sub-examination board for Mathematics and Business Analytics monitors the quality of examinations and assessments of this programme. This board is part of the Faculty-wide Examination board.

The examination methods for the courses are selected in line with the courses' contents. The examination methods in the programme mainly constitute written final examinations and homework assignments. The Master seminar is assessed on the basis of oral presentations. In most of the courses, multiple examinations are scheduled. Homework assignments may constitute no more than 40 % of the course grade to counter the effects of any free-riding. The written examinations have to be at least 60 % of the course grade. To pass the course, the grade of written examinations has to be at least 5 out of 10. PhD students and postdoctoral researchers may be involved in marking course examinations, but under examiners' supervision only.

The Master projects may either be done within university or as internships in research institutes or companies. The number of internship projects is limited. Internships have to be approved by the internship committee. In consultation with their supervisor, students select the topic for the project. Topics range from very abstract to very applied. Students are guided individually by one of the staff members of the Department of Mathematics, also in case of internship projects. Students are to present orally the intermediate results of their projects in the Master seminar. At the end of the Master projects, students hand in their written reports and give their final oral presentation. The projects are independently assessed by two examiners. The examiners assess the projects on the basis of assessment criteria as the thesis (50 % of the grade), attitude and execution (30 %) and final presentation (20 %). The thesis grades are to be at least 5.5 out of 10.

Programme management and the Examination board have taken a number of measures to promote the quality of examinations and assessments. The Examination Board appoints two examiners for each of the courses. Course goals are drafted in clear terms. Draft examinations are peer-reviewed by fellow examiners. Examination matrices have been adopted. Answer models to mark examinations have to be submitted. The validity of examinations with pass rates of less than 50 % is checked by the Examination board. Students are entitled to inspect their marked examinations. Every year, the Examination board inspects 10 % of the course examinations, a number of Master projects and a number of Master projects' assessment forms. Master projects are all checked for plagiarism.

The examination board monitors the contents and quality of the Mastermath courses and of the examinations of these courses. Mastermath presents the course records, examination reports and the names of the examiners for the courses to the examination boards of the participating universities. These boards verify the quality of the courses and of the examinations. If one board, notably the board

of the university offering the course, approves of the quality, the other boards accept this decision as their own. The examination boards of all of the programmes, participating in Mastermath, meet yearly to discuss the Mastermath examinations' and assessments' quality assurance. The Teaching and Examination Regulations of this Vrije Universiteit Amsterdam programme apply for the Mastermath courses.

Considerations

The panel approves of the examinations and assessment rules and regulations of the programme, these being in line with Vrije Universiteit Amsterdam and Faculty of Science policies. The panel is positive about the position and the activities of the Examination board.

The panel approves of the examination methods adopted by the programme. The examination methods are consistent with the goals of the courses. The processes of marking examinations are adequate. The policies to curtail the effects of free-riding are appropriate.

The supervision and assessment processes for Master projects have been well-organised. Students are offered appropriate supervision. The assessment procedures are up to standard, involving two examiners assessing the work separately. The panel, however, advises to add more extensive arguments to substantiate the assessments of the Master projects. These may take the form of concise comments on the selection of the topic of the thesis, the preparation of the student on the subject concerned, the summary of the contents of the thesis, the specification of the own contributions by the student, the creativity and mathematical depth of the student contributions and the quality of writing and oral presentation by the student.

The panel considers the measures taken by the programme to assure the quality of examinations and assessments to be appropriate. The panel regards these measures as assuring valid, reliable and transparent examinations and assessments. The panel approves of the regulations regarding the Mastermath examinations and the quality control of these examinations by the examination board.

Assessment of this standard

The considerations have led the assessment panel to assess standard 3, Student assessment, to be satisfactory.

4.4 Standard 4: Achieved learning outcomes

The programme demonstrates that the intended learning outcomes are achieved.

Findings

The panel studied the examinations of a number of courses of the programme.

The panel reviewed the Master projects of fifteen graduates of the programme with different grades, from both full-time students and part-time students and from students of different tracks. In the Master projects, students are to demonstrate having achieved all intended learning outcomes of the programme. The average grade of these projects is 8.3 for the graduates of the last two years.

In the Master seminar, professional field representatives and researchers, including PhD students, inform students about their work. From 2008 onwards, the Work field advisory board for the Mathematics and Business Analytics programmes, being composed of programme alumni and professional field representatives, advises programme management on the alignment of the programme with trends in the professional field.

The programme conducted a survey among graduates of this programme and the Master Stochastics and Financial Mathematics programme of Vrije Universiteit Amsterdam. Programme graduates tend to find positions in the professional field even prior to their graduation. Graduates are employed in academia or as teachers (34 %), as data scientists or analysts (15 %), in software development (14 %), in risk management (11 %), in quantitative analytics (9 %) or in actuarial sciences (8 %).

Considerations

The examinations of the courses which were reviewed by the panel are of appropriate level.

The panel assesses the Master projects to be up to standard. The quality of the projects varies. The panel supports the grades awarded to the projects. No Master projects were found to be unsatisfactory.

The panel is convinced the programme graduates have reached the intended learning outcomes of the programme. Programme graduates find appropriate positions close to their graduation date.

Assessment of this standard

The considerations have led the assessment panel to assess standard 4, Achieved learning outcomes, to be satisfactory.

5. Overview of assessments

Standard	Assessment
Standard 1. Intended learning outcomes	Satisfactory
Standard 2: Teaching-learning environment	Satisfactory
Standard 3: Student assessment	Satisfactory
Standard 4: Achieved learning outcomes	Satisfactory
Programme	Satisfactory

6. Recommendations

In this report, a number of recommendations by the panel has been listed. For the sake of clarity, these have been brought together below.

- To add ethical awareness to the intended learning outcomes.
- To try and raise the number of incoming students.
- To reconsider the design of the curriculum, to determine the tracks to be offered and to address the balance of fundamental and applied mathematics in the programme.
- To strengthen the subject of ethics in the curriculum.
- To discuss the challenging nature of some Mastermath courses with Mastermath management.
- To give the curriculum committee permanent status.
- To monitor the student success rates of the programme.
- To hold exit interviews on the reasons for students to leave.
- To add more extensive comments and arguments to substantiate the assessments of the Master final projects.