

**Bachelor of Science  
Econometrics and Operations Research  
Vrije Universiteit Amsterdam**

*Report of the limited programme assessment  
16 – 18 November 2022*

Utrecht, The Netherlands

March 2023

[www.AeQui.nl](http://www.AeQui.nl)

*Assessment Agency for Higher Education*

## Colophon

### **BSc Econometrics and Operations Research**

VU Amsterdam

Academic Bachelor (wo-ba)

Location: Amsterdam

Mode of study: full-time

CROHO: 56833

Result of institutional assessment: positive (June 2020)

### **Panel**

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The panel was presented to the NVAO for approval.

The assessment was conducted under responsibility of

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## Table of contents

Colophon.....	2
Table of contents .....	3
Summary .....	4
Introduction .....	6
1. Intended learning outcomes.....	8
2. Teaching-learning environment .....	11
3. Assessment.....	18
4. Achieved learning outcomes.....	22
Attachments.....	25
Attachment 1 Assessment committee.....	26
Attachment 2 Site visit programme.....	27
Attachment 3 Overview of materials.....	29

## Summary

From 16 to 18 November 2022 an assessment committee of AeQui visited the School of Business and Economics (SBE) at VU Amsterdam to perform a quality assessment of 11 degree programmes in Economics. This document reports on the committee's assessment of the Bachelor of Science (BSc) in Econometrics and Operations Research (EOR) according to the 2018 NVAO framework for limited programme assessment. The BSc EOR is a three-year full-time 180 ECTS programme, which is offered in English and Dutch. In addition to the regular EOR programmes, students can also opt right from the start for the English-language specialisation Econometrics and Data Science (EDS). The assessment committee has established that the BSc EOR programme meets all four NVAO standards under consideration: intended learning outcomes, teaching-learning environment, assessment and achieved learning outcomes. As a result, the committee's overall assessment of the quality of the BSc programme Econometrics and Operations Research is **positive**.

### Intended learning outcomes

The BSc EOR has a specific profile, which is rooted in the vision on education of both VU and SBE and is adequately reflected in the learning outcomes and curriculum of the programme. This results in a strong programme that focuses on the methodological, mathematical and quantitative aspects of economics. BSc EOR students are offered both a well-rounded disciplinary foundation in Econometrics and Operations Research and highly appreciated opportunities for specialisation in Econometrics and Data Science. Since the previous accreditation, the intended learning outcomes have been restructured and reformulated: the current formulation is adequate and reflects properly the domain, level and orientation of the programme. Because EOR students are trained to bridge theory and practice, the programme seeks input from external stakeholders to keep its curriculum up-to-date. The recently adjusted advisory board constitutes an important and useful instrument in this respect. The assessment committee judges that the BSc EOR **meets this standard**.

### Teaching-learning environment

The teaching-learning environment for the BSc EOR is well developed. The programme structure is coherent for EOR and EDS students who follow common and dedicated mandatory courses, have a considerable degree of flexibility in the minor period and room for specialisation. The course learning goals and the programme learning outcomes are well attuned and thus ensure that by the time of graduation, EOR students will have achieved all intended learning outcomes. Since the previous accreditation, the language of instruction has switched

from Dutch to English, leaving opportunities for Dutch students in year one to smoothen the transition to English. The committee endorses the choice of the school and the programme to offer the EOR programme in English. In terms of didactics, the learning environment reflects the priorities and vision of both VU and SBE. There is a clear move in the School and the EOR programme towards more activating forms of learning. Qualified and motivated educational innovators are taking the lead in introducing active blended learning in courses. Yet, their work needs to be picked up and streamlined across programmes. There is also room for implementing the mixed classroom as an educational principle in the programme. This is all the more important given that, with the current (dis)balance between Dutch and international students, there is a risk for segregation in the cohorts. Over the years, the student intake has increased steadily. This growth, however, neither has affected the quality of education in EOR, nor the highly appreciated guidance, support and mentor system. Both local and international students feel welcome at VU and praised the attention of the university services to student wellbeing, notably but not exclusively during the COVID-19 pandemic. EOR pays good attention to monitoring student data. Still, while the drop-out rate is reasonable and the average study duration is adequate, the share of students who finish within the nominal duration can be improved. The number and quality of staff involved in the EOR programme is good: recent hirings have ensured that the growing number of students can be taught and tutored in adequate conditions and by a sufficient number of properly qualified staff. Faculty invariably brings extensive research experience to the course; in several cases

they share hands-on professional and academic expertise to bridge theory and practice. The cooperation with expert staff from the Science and the Humanities faculties is a clear value added of the programme. A strong point of the HR policy is that SBE offers plenty of development opportunities, such as basic and senior teaching qualifications, which staff are making good use of. The assessment committee judges that the BSc EOR **meets this standard**.

### Assessment

The assessment at EOR is robust. This appreciation is based first and foremost on the fact that both course and thesis assessment are embedded in well-established policies and frameworks at the level of the university and the school. The sample of assessment formats shows that the assessment principles and policies are properly implemented in the course assessments. The EOR assessment plan demonstrates that course learning goals are assessed adequately, which in turn ensures that all learning outcomes at programme level are covered. Since the previous accreditation visit, both school and programme have made considerable efforts to bring assessment quality up to par. The Examination Board has grown in capacity and competency, as is demonstrated by the variety of assessments tasks it has been assuming, and is capable to assure the assessment quality of the EOR programme. In so far as thesis assessment is concerned, the BSc EOR programme can rely on a solid thesis procedure and policy and is using a relevant evaluation form with room for individual scores and feedback. However, the sample of thesis assessments reviewed by the committee showed that there is room for more calibration across staff involved in EOR thesis assessment and for better motivating the individual scoring criteria in the summary feedback. The assessment committee judges that the BSc EOR **meets this standard**.

In view of its positive assessment of the programme quality as a whole and its judgement on each of the four accreditation standards, the committee issues a **positive** recommendation to NVAO regarding the accreditation of the BSc Econometrics and Operations Research at the School of Business and Economics of VU Amsterdam.

On behalf of the entire assessment committee, Utrecht, March 2023

Hans van Ees  
Chair

Mark Delmartino  
Secretary

### Achieved learning outcomes

In order to establish whether the EOR programme learning outcomes have been achieved, the committee reviewed a sample of bachelor theses and checked what graduates were doing after they finished the programme. The thesis sample and the discussions on-site revealed that upon graduation, BSc EOR students have definitely achieved all programme learning outcomes. The thesis review has shown that students are capable of writing good quality final products. The discussion with alumni confirmed that the EOR programme prepares students for a relevant academic or professional career. The assessment committee judges that the BSc EOR **meets this standard**.

### Recommendations

The assessment committee has issued a positive judgement on the BSc EOR programme and on the quality of each individual accreditation standard. Nonetheless the committee also sees room for improvement in a number of areas. The following suggestions constitute no formal recommendations, but points for attention the committee picked up during the visit and reported in the respective assessment standards. The committee advises the programme to:

- streamline the (results of the) work on educational innovation / active blended learning across programmes;
- make use of the geographically diverse student intake to implement the mixed classroom as an educational principle in the courses;
- organise more calibration among staff involved in thesis assessment and monitor that scoring criteria are motivated better in the summary feedback.

## Introduction

The School of Business and Economics at Vrije Universiteit Amsterdam offers a three-year full-time BSc programme in Econometrics and Operations Research. Right from the start of the programme, students can opt for the specialisation Econometrics and Data Science. Recently, the language of instruction has switched from Dutch to English, maintaining options for students to do exams and assignments in Dutch. Over the years, the student intake has grown to around 160 students, 11% of whom are international. The external assessment of the BSc EOR programme is part of a wider cluster assessment covering degree programmes at Erasmus University Rotterdam, VU Amsterdam, the University of Utrecht and Wageningen University.

### Institution

Vrije Universiteit (VU) Amsterdam is a university with nine faculties in Humanities, STEM, Social and Medical Sciences. Since its foundation in 1880, VU Amsterdam has stood for scientific and value-driven education, research and knowledge transfer. Its education and research are closely linked and have a strong social orientation. All education is provided on one campus in the heart of the Zuidas Knowledge District.

The School of Business and Economics (SBE) is one of VU's faculties and offers four BSc, ten MSc and 15 postgraduate programmes in economics and business administration. Since its establishment in 1948, SBE has evolved into a school with more than 8,000 students and over 500 academic and non-academic staff members.

The school is governed by the SBE faculty board under the leadership of the dean. The academic staff is divided in departments; each head of department assigns the teaching, research and administrative tasks. SBE has a well-established system of quality assurance of teaching and assessment, which is based on the VU Manual for quality assurance of teaching and learning and to which all programmes adhere. SBE has two examination boards in the economics cluster: one governing all government-funded programmes and one for accredited postgraduate programmes.

### Programme

Each degree programme has a dedicated programme director who is responsible for content, organisation and quality assurance. The director

ensures that the curriculum is adjusted to the intended learning outcomes and that the learning environment meets the quality requirements of SBE. In the bachelor and larger master programmes, one or more programme coordinators assist the director. Each degree programme has a programme committee comprising of an equal number of students and lecturers, appointed by the SBE faculty board.

The Bachelor of Science (BSc) in Econometrics and Operations Research (EOR) is a three-year full-time 180 ECTS programme. Since the previous accreditation visit, the regular programme has been complemented with the specialisation Econometrics and Data Science (EDS), which is offered in English. Moreover, the language of instruction in the regular EOR programme has switched from Dutch to English, with first year students now having the opportunity to attend Dutch tutorials and do exams and assignments in Dutch. Over the years the student intake has grown to around 160 students; in September 2021, EDS accounted for about 40% of the intake. SBE has concrete plans to offer EDS as a stand-alone BSc programme.

### Assessment

This assessment is part of a wider cluster assessment Economics group 1, which consists of the Erasmus University Rotterdam, VU Amsterdam, Utrecht University and Wageningen University. The group assigned AeQui to perform a quality assessment of its bachelor, master and research master programmes in Economics. Together with the cluster group and its individual schools/facul-

ties, AeQui convened an independent and competent assessment committee. The committee members are shortly presented in attachment 1.

At VU Amsterdam, the cluster assessment features 11 bachelor, master and post-experience (executive) master programmes. In the run-up to the visit, a preparatory meeting was held with representatives of SBE to exchange information and plan the dates and programme of the site visit. The visit was carried out from 16 until 18 November 2022 according to the programme presented in attachment 2.

In so far as the Bachelor of Science (BSc) Econometrics and Operations Research (EOR) is concerned, the assessment committee members studied the programme's self-evaluation report and reviewed a sample of 15 BSc EOR theses. Their first impressions on the report and the thesis (evaluations) formed the basis for discussion during an online preparatory meeting on 8 November 2022, and guided the committee's questions during the site visit.

Prior to the visit, the committee held an Open Consultation Hour for students, teaching and support staff; eventually nobody used the opportunity to speak individually and confidentially with the committee. Initiated by the programmes, the visit also featured a Development Dialogue.

The results of this dialogue have no influence on the assessment in this report.

Furthermore, the programme put at disposition many relevant materials, which served as background information for the assessment committee before and during the visit. An overview of these materials is listed in attachment 3.

The committee has assessed the programme in an independent manner; in relation to, and in consideration of, the cluster of programmes in which this programme is placed. The contextualisation of the programme within its cluster was conducted by the complete committee during the preliminary meeting and the final deliberations. At the end of the visit, the chair of the assessment committee presented the initial findings of the committee to representatives of the programmes and the school.

In the underlying document, the committee is reporting on its findings, considerations and conclusions according to the NVAO framework 2018 for limited programme assessment. A draft version of the report was sent to the programme management at the end of January 2023; its reactions have led to this final version of the report.

## 1. Intended learning outcomes

The Bachelor of Science (BSc) in Econometrics and Operations Research (EOR) focuses on the methodological and mathematical quantitative aspects of economics. It enables students to use mathematical, probabilistic and statistical tools to solve real-world problems in business, economics and finance. The BSc EOR has a specific profile, which is rooted in the vision on education of both University and School and 'translated' in the learning outcomes and curriculum of the programme. This results in a strong programme that offers students a well-rounded disciplinary foundation and highly appreciated opportunities for specialisation. The formulation of the intended learning outcomes is adequate and reflects properly the domain, level and orientation of the programme. The BSc EOR pays good attention to the professional component in the curriculum and seeks input from external stakeholders - including an advisory board - to keep its curriculum up to date. According to the committee, the BSc EOR programme **meets this standard**.

### Findings

#### Purpose

The Bachelor of Science (BSc) in Econometrics and Operations Research (EOR) focuses on the methodological and mathematical quantitative aspects of economics and enables students to use mathematical, probabilistic and statistical tools to solve real-world problems in business, economics and finance. By focusing on mathematical theories and paying attention to modelling and testing of economic problems and theories in mathematical and scientific terms, the analytical skills of students are strengthened. Students acquire both academic and practical skills, which are important for their follow-up studies and/or career in a quantitative field.

The assessment committee gathered from the written materials and the discussions that the objective of this bachelor programme aligns with the vision of both VU and SBE, which is formulated along two axes: (1) the behavioural component is firmly embedded in the core values responsible, personal and open of the VU; and (2) the content component consists of the roles academic, professional and citizen. These elements have guided the elaboration of education in the BSc EOR and are reflected in the learning outcomes of the programme and the course learning goals. The committee endorses that integrating the academic, professional and citizen roles with

the behavioural components responsible, personal and open creates a unique profile for both SBE and for the bachelor students that graduate from the EOR programme.

Furthermore, the committee noticed that the structure, level and contents of the BSc EOR programme at VU are comparable to other econometrics programmes in the Netherlands. In this respect, the programme follows the "Dutch model" in which econometrics, operations research and mathematical economics are combined. The programme does stand apart, though, in offering since 2017 a specialisation on Econometrics and Data Science (EDS). SBE started this specialisation to serve the growing need for data science specialists and to enhance its international profile. The committee understands from the discussions that the existence of this specialisation makes several secondary school graduates opt for an econometrics study at VU. Following the initial success of EDS, there are concrete plans to turn the EOR specialisation into a stand-alone BSc programme. This, in turn, would allow SBE to sharpen the programme's profile, extend its target group both nationally and internationally and strengthen VU's data science education portfolio and market position.

#### Intended Learning Outcomes

The programme's intended learning outcomes consist of learning goals and learning objectives:



the goals refer to what graduates are or have and are set SBE-wide; the objectives refer to what graduates can do or make and are specific to the EOR programme. The committee observed that there is a direct link between the respective goals and objectives, and that both goals and objectives are clustered around five dimensions: academic and research skills, bridging theory and practice, social skills, broadening horizons, and self-awareness.

The EOR programme features five learning goals and seven learning objectives. Compared to the previous accreditation visit, the intended learning outcomes have been reformulated to reflect the AACSB format: the Association to Advance Collegiate Schools of Business is a highly reputed accreditation body whose international quality standard SBE managed to obtain since the previous accreditation visit. The current assessment committee has studied the intended learning outcomes and noticed that they are formulated at the appropriate bachelor level and reflect the academic orientation of the programme. Furthermore, the committee gathered from the materials and discussions that there is alignment between the EOR learning outcomes, the European-wide Dublin Descriptors and the disciplinary objectives pursued by other national and international degree programmes in the domain of econometrics, operations research and data science.

The committee appreciates the broadening horizon dimension in the learning outcomes. It finds the objective that graduates “can reflect on the ethical and social implications of the outcome of their analysis” highly relevant for BSc students. The required domain-specific knowledge is broken down in a knowledge and an application component and is formulated differently for EOR and EDS. By the end of the BSc programme, EOR students should “demonstrate a thorough knowledge of the three core areas of econometrics: econometrics, operations research and mathematical economics” and be able to “model business and economics problems using analytic methods from mathematics and statistics.” EDS

students from their side should “demonstrate a thorough knowledge of econometrics and data science techniques” and be able to “analyse complex real-world problems using tools from econometrics, data science and statistics.” The committee understands that it is a conscious choice of SBE and the programme to keep the formulation of the programme learning outcomes at a fairly abstract level. Nonetheless, the learning outcomes do indicate what the programme and its specialisation stand for. Anticipating on what will be covered in the next section, there is a clearly demonstrated link between the course learning goals and the learning outcomes at programme level.

#### **Professional Field**

In line with the vision of both VU and SBE, the EOR programme aims to educate its students to become responsible professional practitioners. While the vast majority of students choose to pursue an MSc programme after the bachelor, it is the explicit aim of VU, SBE and the EOR programme to offer multiple career options. BSc EOR students should be able to access both quantitative (inter)national MSc programmes and enter the labour market directly.

The committee noticed that there is ample attention to the professional component in both learning outcomes and curriculum. In order to keep the curriculum up-to-date, the programme obtains useful input from internship supervisors, from staff that is also active in the professional field and from organisations who eventually employ EOR graduates. Moreover, the BSc EOR programme has an advisory board together with the master’s programme Econometrics and Operations Research. In 2022 the composition of the board has been adjusted to better suit the choices of students in their third bachelor’s year and their master. The committee has studied the composition of the advisory board and thinks that the current members indeed cover the breadth of the EOR and EDS field.

## Considerations

Based on the written materials and the discussions on site, the assessment committee considers that the BSc EOR has a specific profile, which is rooted in the vision on education of both VU and SBE and is adequately reflected in the learning outcomes and curriculum of the programme. This results in a strong programme, focusing on the methodological and the mathematical quantitative aspects of economics. At SBE econometrics students are offered both a well-rounded disciplinary foundation and highly appreciated opportunities for specialisation. In this regard, the committee understands the rationale of SBE to turn its successful econometrics and data science specialisation into a stand-alone programme.

The committee endorses the way the intended learning outcomes have been restructured and

reformulated since the previous visit; their formulation is adequate and reflects the domain (econometrics, operations research, data science), the level (bachelor) and orientation (academic) of the programme.

The committee appreciates the attention of the programme to the professional component in the curriculum. As EOR students are trained to bridge theory and practice, the programme seeks input from external stakeholders to keep its curriculum up-to-date. According to the committee, the recently adjusted advisory board constitutes an important and useful instrument in this respect.

In view of the above findings and considerations, the assessment committee judges that **the BSc EOR programme meets standard 1, intended learning outcomes.**

## 2. Teaching-learning environment

The programme's teaching and learning environment is well developed. The curriculum structure is coherent for both the EOR programme and the EDS specialisation. The course learning goals, the curriculum learning lines and the characteristics of the programme learning outcomes are well attuned. The committee endorses the decision to offer the BSc EOR programme in English and thinks highly of the language support in year one. Both the School and the programme are developing activating forms of learning and educational innovators are introducing blended learning in courses. Their work now needs to be picked up and streamlined within and across programmes. Moreover, the mixed classroom as an educational principle can be embedded more strongly in the programme. The gradual growth in EOR student intake has affected neither the quality of education nor the highly appreciated guidance, support and mentor system. Both national and international students feel welcome at VU and praised the attention of the university services to student wellbeing, notably but not exclusively during the COVID-19 pandemic. The programme is taking care to monitor the student drop-out, progress and success rates. The number and quality of staff involved in the EOR programme is good. Faculty brings extensive research experience to the courses and share hands-on professional and academic expertise to bridge theory and practice. According to the committee, the BSc EOR programme **meets this standard**.

### Findings

#### Programme

The BSc EOR is a three-year full-time bachelor programme that amounts to 180 ECTS. Right from the start, students enrol for either EOR or EDS. In the first and second year their programmes consist of mandatory courses. Most courses are common to both specialisations in year one, often with dedicated EOR and EDS tutorials. The first year focuses on analysis, linear algebra, probability theory and statistics, so that EOR and EDS students can deal with formal mathematical definitions and understand mathematical model building. In order to ensure that the mathematical level is high enough, four courses are offered by the Faculty of Science. In the second year, students deepen their knowledge in EOR or EDS. A compulsory ethics courses builds awareness of ethical issues in econometrics, operations research and data science. During the first two years, all students follow four skills training courses. The fifth semester consists of an elective programme of 30 ECTS: a university minor, a faculty minor, a personal selection of courses, a study period abroad or an internship. Many EOR students choose the minor Applied Econometrics. In the sixth semester students specialise further in

a particular domain of EOR/EDS with a thesis (12 ECTS) in the area of their specialisation.

The committee learned that there is a link between the course learning goals and the programme learning outcomes, which is not only visible on paper – the committee studied the curriculum map, the assessment plan and the study guide – but is also implemented in the day-to-day teaching and assessment practice of the courses. The committee gathered from the extensive description in the self-evaluation report that the respective programme learning objectives are addressed throughout the curriculum and that each course has formulated specific course objectives that contribute to an overall programme objective and is assessed explicitly.

The relationship between course-level objectives and programme-level intended learning outcomes is made clear to students in the course descriptions in the study guide. Moreover, the learning objectives and their related course objectives are presented in the Assessment Plan, which also indicates the forms of assessment used in each course in relation to the course-level learning objectives. The committee also observed in the as-

assessment plan that irrespective of the specialisation, the required courses and the thesis together ensure that all learning outcomes are covered in the curriculum.

Ambitious students can join the selective VU Honours Programme, which consist of extra-curricular courses (30 ECTS) on top of the regular programme. Students take honours courses within the faculty to gain a more in-depth perspective or interdisciplinary honours courses at VU, University of Amsterdam or the Amsterdam University College to explore topics from various angles with students and lecturers from other disciplines.

During the visit, the committee discussed the programme structure with management, staff and students. Students are satisfied with the way the programme is built up throughout the three years. They like the iterative structure with longer periods of foundational theoretical and methodological courses in periods 1, 2, 4 and 5, and more practical skills-related projects in periods 3 and 6. In this way, students acquire both the theoretical knowledge and the practical and research skills that are necessary in EOR/EDS. Lectures are often accompanied by practical assignments and students get to know partners from industry, government and university in so-called case study networks. As part of their minor period, students can opt for an internship; students also have the opportunity to write their bachelor thesis in connection with a company.

The committee also inquired about the study load for students and the overall feasibility of the curriculum. Students mentioned in their written contribution and during the site visit that the first year is definitely the most difficult. Although the programme does well in announcing the level of complexity during open days and matching exercises, students do enter the programme with different levels of high-school mathematics and are expected to reach a good level by the end of year one. In the second year, there is more attention

to applying EOR and EDS methodology and theory. The committee was informed that SBE and EOR are working hard on mitigating the transition from secondary school to university level mathematics, e.g. by organising a summer school for both students and staff from secondary schools.

### **Language of instruction**

Since the previous accreditation, the language of instruction in the BSc EOR has changed from Dutch to a combination of English and Dutch. The transition took place gradually, starting with the first year in September 2018. At the time of the site visit in fall 2022, the transition has been completed. The Teaching and Examination Regulations of the EOR programme specify that year one is taught in English, with the provision that students may express themselves in Dutch, can register for a Dutch variant of tutorials and may formulate their answers in Dutch at examinations. Years two and three are taught in English. Since its introduction in 2017, the specialisation Econometrics and Data Science is offered entirely in English.

During the visit, the committee was informed that the change of language was discussed within the school and that the decision was eventually made after extensive consideration of the different arguments. Offering the programme in English caters to an emerging need to create a more inclusive learning environment and to broaden job perspectives. In line with its profile, SBE and the EOR programme want(ed) to prepare students for the labour market and have graduates meet the stronger entry requirements for a follow-up master programme. Moreover, English is the leading language in both academia in this area and the business world. Although many students will join Dutch companies or international firms operating in the Netherlands upon completing their studies, these organizations have an international workforce and also operate outside the Netherlands. Field practitioners confirmed that in many cases English is the default language in the day-to-day working environment students will encounter af-

ter graduating. Furthermore, by switching to English, EOR joins the path chosen by other Dutch institutions who offer comparable programmes in English.

The committee learned from the discussions that the change in language of instruction was also accompanied by specific guidance by SBE to bring the language competencies of both students and staff up to par. Both Dutch and international staff are expected to have level C1 when they teach English-language courses and are offered upskilling training where needed. Students from their side are prepared in first-year assignments to reach a proper level of English that allows them to function in an English language environment as of year two. One very relevant initiative in this regard is the cooperation with the Humanities faculty with students from the English language programme support EOR students in improving their English writing skills. Moreover, in line with the VU principle that courses are taught by experts, teachers from the Faculty of Humanities are involved since September 2022 in the period 6 courses in years one and two. They will give English language feedback on the student reports (writing skills) and their presentations (oral skills).

Based on the materials in the report and the discussions on-site, the assessment committee endorses the decision of SBE and the programme team to offer EOR in English. The motivation for this change is relevant, and the support for both students and staff to bring their English language competencies up to par is extensive. The committee welcomes in particular the cooperation with the Humanities faculty, which it considers a good practice that deserves dissemination beyond SBE.

### Didactics

In terms of didactics, the BSc EOR is aligned with the educational vision of VU and the teaching methods at SBE: most courses and staff make intensive use of activating teaching formats and interactive tools to involve students as much as possible and to check whether they have understood the course materials. The committee was

informed that such teaching formats are explicitly promoted by VU and SBE because it helps students to understand the materials in greater depth, it enhances their analytical and problem-solving skills, and it develops an attitude towards self-reflection.

Given the particular situation that high-school mathematics differs substantially from the mathematical and quantitative skills needed for an EOR programme, the intensity of student guidance is greatest in the first year and results in a higher number of contact hours. This intense support should help students to bridge more easily the gap between high-school mathematics and mathematics at university level in a quantitative study. As of year two, every course includes 24 hours of plenary lectures (introducing the material) and 12 hours of small-scale instructions or tutorials (working with/applying the material). The programme accommodates individual as well as group assignments; most tutorial and instruction classes are optional, but students tend to participate. Asked why courses consist primarily of plenary lectures, the programme team indicated that it is important to first present the (sometimes difficult) foundational concepts. Once students have learned about the materials, they apply these concepts in tutorial groups of 30 people, where tutors check through small team assignments (4-5 people) whether students have fully understood the materials. The committee also learned that staff uses activating teaching methods and interactive tools in their plenary lectures to involve students as much as possible and to check whether they have understood the course materials.

The committee gathered from the written materials and the discussions on site that the implications of the COVID-19 pandemic have accelerated the need for - and the possibilities of - new ways of teaching. SBE is using the lessons learned during the lockdown to develop its education vision on and implementation of promising online teaching tools and techniques that are relevant

beyond a single course. In this regard, the committee noticed that the Faculty Board promotes blended learning as an important instrument for teaching innovation, yet leaves a lot of discretion to the individual programmes for implementing such forms of educational innovation. The EOR programme is discussed with the Task Force Active Blended Learning set up by the SBE. As a result an EOR working group "active blended learning" was started and has in the meantime reached all staff involved in the programme. Currently, the course Big Data Statistics is used as a pilot case for making the transition to blended learning. The committee noticed during the visit that the individual lecturers and staff in the Task Force have not only adequate expertise but also a clear vision on active blended learning in the SBE programmes; the committee welcomes this expertise and vision, and encourages the innovators to continue disseminating the good practices to their colleagues. At some point, however, these good practices should also be shared across programmes at the level of the school, which according to the committee has not yet been realised.

Furthermore, the committee noticed in the written materials that SBE in general, and EOR in particular, often refer to the concept of the Mixed Classroom. This concept is not meant in a descriptive way (in reference to an international classroom with a certain level of diversity) but is the name of VU's educational model: by applying this model, students learn how to open up to differences, to co-create an inclusive environment and to capitalise on different perspectives in order to create value. During the visit, several stakeholders indicated that since the introduction of the English-language curriculum in EOR, the number of international students has grown, notably in the EDS specialisation. This has led to a more mixed composition of the EOR cohorts and thus to classrooms featuring students from different nationalities. However, students mentioned that the international composition of the class does not automatically entail a mixed or international classroom in didactic terms: while students welcome

the presence of geographically diverse fellow students in class, from an educational point of view a lot more can be done with such mixed groups. The committee heard that one possible explanation for this limited use of the mixed classroom is that there is still an imbalance (of about 8:1) between the majority of Dutch students and the minority of non-Dutch students. The committee encourages the programme team and the individual course coordinators to make optimal use of the mixed composition of the cohorts and implement teaching formats that do justice to the international classroom.

### Students

The committee read in the self-evaluation report and the detailed appendix on student data that since the previous accreditation visit, the yearly intake has grown from 125 students in 2017 when the specialization EDS was introduced to more than 160 students in 2021-2022. Over the years the share of EDS students has risen from 17% at the start to 48% in 2021. The number of students with a foreign education has increased to 11% for the most recent intake, with EDS (15%) attracting relatively more international students than EOR (7%). The male-female ratio remains stable at 3:1. The programme team indicated that both the gradual increase and the current student numbers are feasible and do not jeopardise the quality of education.

The EOR programme does not operate a selection procedure or a *numerus fixus*. All students holding a Dutch pre-university secondary school (VWO) diploma that includes mathematics B are eligible for admission. International students with an equivalent diploma, proof of sufficient English and proficiency in mathematics can be admitted, as well. It is VU-wide policy that all applicants display a sufficient level of English. As EOR first-year students show a diverse level of prior knowledge in mathematics, it is emphasised during recruitment activities that sound prior knowledge of mathematics is very important. To ensure that all students envisaging to enter the programme have sufficient knowledge, they pass a mandatory

'matching' activity called study choice check, which consists of an online questionnaire, class attendance and a final test. After this test they are recommended or discouraged to enrol.

In the first year, students are required to earn at least 42 ECTS in order to obtain a positive Binding Study Advice (BSA). Due to the COVID-19 pandemic, these requirements were dropped or adjusted downwards in the academic years 2020-21 and 2021-22. According to the data, about a quarter of the EOR students drop out during the first year. The committee gathered from the discussion on-site that this is a relatively low drop-out rate for an EOR programme and may be linked to the guidance students receive during their studies, notably in the first year. In this regard, the Students' Academic Mentor programme (SAM) stands out: it is designed to give first-year students a good start with their study. All freshmen are assigned a mentor and become part of a mentor group led by third-year bachelor or master students, who in turn are supervised and guided by EOR tutors/lecturers.

Student data indicate that the average study duration has been fluctuating between 40 and 44 months: this means that students who pass the BSA tend to finish their three-year study with an average delay of 6 months. Recent information on the success rate of entire cohorts was quite limited. The available data shows that just under half of the EOR students finish within the nominal duration of three years, while more than 70% does so in four years. During the visit, the committee was informed that SBE and EOR are paying attention to the success rate, and is doing even more so now, because cohorts who are about to finish in 2022-2023 have started their programme during the COVID-19 pandemic. The committee welcomes this attention and encourages the programme team to continue implementing the measures that are already in place.

During the session with students, the committee was informed that students appreciate the atten-

tion of VU, SBE and EOR for both student guidance and student wellbeing. Students shared positive personal experiences of how student wellbeing is taken very seriously at VU, and how they felt included and not left behind during the lockdown.

Students indicated that SBE and EOR make international students feel included at programme level. Nonetheless, a few students did mention that there still is some degree of separation between Dutch and international students, because the number of international students in the courses is still relatively limited.

Finally, students mentioned that they have the opportunity to study abroad and that this option in the minor period is organised quite well, with adequate support from the International Office. Opportunities for internships as part of the curriculum exist, but can be enhanced notably at the level of communication. The Career Services are helping out, but seem to somewhat undersell their offer as they actually do more than what students know. Moreover, several internship positions are not disseminated widely on Canvas, but go through the personal network of professors/departments. In terms of the post-study period, the Career Services is organising workshops and the Study Association is holding career information days. In both cases there is attention for students who combine their study with a job.

### Staff

The committee gathered from the self-evaluation report that most of the teaching and the coordination is performed by staff belonging to one of the SBE Departments. A few staff members are linked to the Science or the Humanities Faculties. All staff members are active in research, hence they can guide students to the current academic research frontiers, help shape their conceptual skills, and prepare them to engage in research. In addition, there are several lecturers who hold positions at SBE and in industry. These staff are well placed to support students in building bridges between science and practice. During the visit the

committee established that staff dedicated to the EOR programme has relevant credentials.

According to the overview in the appendix to the report, the BSc EOR programme features 33 academic staff members who have an average 0.9 FTE appointment with SBE. About 55% of the staff is international and 31% is female. The steady growth in student numbers has led to additional staff recruitment. The discussions on-site have convinced the committee that, also in view of recent hirings, the number of staff is sufficient to deliver the EOR programme in good quality.

Furthermore, the committee noticed that staff development is well organised at EOR as it is embedded in policies and documents including 'SBE HRM educational policy', 'SBE BKO policy', and 'SBE Tenure Track procedure'. All academic staff are expected to have English language proficiency at level C1. Permanent staff members can pursue continuing education in specific fields such as active blended learning, mixed classroom, activating work formats, examinations and assessments. Currently, 84% of the SBE academic staff involved in EOR holds a university teaching qualification (BKO) while three staff also obtained the senior qualification (SKO). The latter group is particularly active in course innovation, notably with regard to active blended learning in both teaching and assessment. Several lecturers also joined KnowVU, the knowledge network on teaching operated by the university and dedicated to educational innovation and improvement. Asked about career opportunities, the committee was informed that tenure track staff who engage in programme/course design and innovation also have opportunities to make promotion.

Students indicated both in their contribution to the report and in the discussion on site that they are satisfied with the staff members teaching in the programme. They mentioned that course coordinators and support staff are dedicated to the programme and to the students. Teachers tend to be very approachable, try their very best to provide answers and are open for improvements to

their courses and teaching style. While courses are a mixture of lectures and interactive tutorials, staff is increasingly living up to the expectation that courses should become engaging, hence their focus is shifting from mere information transmission to making students understand and use theory. Teaching staff also plays a role in the overall guidance and student support structure: students appreciate that both faculty and teaching assistants are available for students and can be approached to solve course-related problems.

## Considerations

Based on the written materials and the discussions on-site, the assessment committee considers that the teaching-learning environment at EOR is strongly developed. The committee appreciates the coherent programme structure for both EOR and EDS. Students follow both common and dedicated mandatory courses, have a considerable degree of flexibility in the minor period and room for specialisation that culminates in the bachelor thesis. The information provided on-site on the course learning goals, the curriculum learning lines and the characteristics of the programme learning outcomes have convinced the committee that by the time of graduation, all EOR students will have achieved all intended learning outcomes. Moreover, the committee endorses the choice of the school and the programme to offer the EOR programme in English.

In terms of didactics, the committee considers that the learning environment at EOR reflects the priorities and vision of both VU and SBE. There is a move towards more activating forms of learning, which the committee appreciates. In terms of blended learning, a lot is going on at individual course level. While there are qualified and motivated educational innovators among EOR staff, their work needs to be picked up and streamlined at the programme (and School) level. Moreover, the committee sees room for implementing the mixed classroom as an educational principle in the programme. This is all the more important, given that with the current (dis)balance between



Dutch and international students there is a risk for segregation in the cohorts. All in all, the committee recommends swift action on both active blended learning and the international/mixed classroom, as both concepts seemed to get more exposure in the self-evaluation report than in the day-to-day implementation of the EOR programme.

The committee considers that the growth in student numbers has not affected the quality of education. Moreover, the share of EOR students dropping out in year one is relatively limited because of the extensive guidance and support services by the university, the school and the programme's mentor system SAM. The committee welcomes the efforts of the EOR programme management to monitor the success rates. While the average study duration is good, the share of students who finish within the nominal duration can be improved.

The number and quality of staff involved in the EOR programme is good: recent hirings have ensured that the growing number of students can be taught and tutored in adequate conditions and by a sufficient number of properly qualified staff. Moreover, the committee appreciates the cooperation with expert staff from the Science and the Humanities faculties. It also thinks highly of the professional development opportunities for staff, and in particular of the fact that they also use these opportunities.

In view of the above findings and considerations, the assessment committee judges that **the BSc EOR programme meets standard 2, teaching-learning environment.**

### 3. Assessment

The BSc EOR features a robust system of student assessment, which is embedded in the central policies and procedures of the University and the School. The assessment principles are properly implemented in the course assessments. The EOR assessment plan monitors – and demonstrates – that course learning goals are assessed adequately, which in turn ensures that all learning outcomes at programme level are covered. The current assessment committee recognises that since the previous accreditation visit, both School and programme have made considerable efforts to bring assessment quality up to par. The Examination Board has grown in capacity and competency, and assures the assessment quality of the BSc EOR programme. The programme is using a relevant thesis evaluation form and an extensive assessment matrix. Nonetheless, the sample of thesis assessments reviewed by the committee showed that there is room for more calibration across staff on thesis scoring and for better motivating the individual scoring criteria in the feedback section. According to the committee, the BSc EOR programme **meets this standard**.

#### Findings

##### System of assessment

The committee gathers from the written materials and the discussions on site that the BSc EOR programme operates an assessment system that complies with the assessment policy and procedures of SBE, which in turn are based on a university-wide policy on assessment quality. The programme has put at disposition both policy documents, the *Handboek Onderwijskwaliteit - VU Toetskader* and the *SBE Beleidsplan – Toetsbeleid*.

Moreover, the committee noticed that the BSc EOR has its own programme-specific Assessment Plan with a vision on education and on assessment, a curriculum map, and an overview of course learning objectives and assessment types. The assessment plan describes the forms of testing; in this way both programme director and examination board have an instrument to control the relationship between the programme's intended learning outcomes and course-level objectives and assessment.

Furthermore, each course coordinator creates an assessment file. This file contains, among other things, a test blueprint, the exam, resit exam and/or assignments, a model answer plus scoring guide, a test and item analysis, the results of the course evaluation, and a short reflection report by the examiner. According to the committee, next to good quality policy documents, the BSc EOR

also developed a relevant assessment plan that does justice to both central policies and the specificity of the Econometrics and Operations Research degree programme.

##### Courses

At the level of individual courses, coordinators select the most appropriate assessment methods for testing the learning goals. They do so in close collaboration with the programme director who ensures that across the programme a variety of assessment methods is used. Course coordinators are free to tailor the different exam components to the requirements of their course, provided they inform the programme management accordingly. Teaching staff is encouraged to experiment with innovative forms of teaching and testing; in every course, however, the individual student performance should be the decisive factor in the assessment. The committee agrees to the emphasis on individual exam components and to the promotion of diversity and innovation in assessment formats.

The committee noticed that SBE and EOR uphold the four eyes principle: when constructing the exam, the examiner – who very often is also the course coordinator – takes the course objectives into account and the extent to which these are assessed by the exam. Every course coordinator appoints a co-reader with content knowledge to check the contents of the exam, thus ensuring

that all draft exams are reviewed by at least one other member of staff. The committee welcomes this approach.

In the run-up to the site visit, the EOR programme put at disposition a few individual courses and their assessments. According to the committee, these materials reflected the overall provisions for assessment and were in line with what one can expect of exams in a bachelor programme of academic orientation.

### Thesis evaluation

The bachelor thesis is the culmination of the three-year EOR programme. The thesis process is governed by clear rules and procedures, which are explained in an information session to students and in the thesis manual. The bachelor thesis is conceived as a course with learning goals and a detailed assessment grid. The programme has two thesis coordinators – one for EOR and one for EDS – who manage the thesis process in close consultation with each other and the programme director to ensure coherent procedures and decision-making. This approach has resulted in a shared thesis policy with one dedicated EOR/EDS thesis assessment form, which is completed by the supervisor and the second assessor separately before they reach a final assessment on each criterion. In addition to scoring grids, the evaluation form also features boxes for summary feedback by the respective assessors. The extensive and informative information manual on the bachelor thesis contains an assessment matrix: each of the eight evaluation criteria has rubrics for excellent, good, pass, inadequate and poor performance. According to the committee, the EOR programme has a solid bachelor thesis policy and procedure.

As part of its external assessment, the committee reviewed a sample of 15 bachelor theses and their evaluation forms. Reporting on their review, committee members appreciated that the evaluation form addressed all relevant criteria and allowed for (extensive) feedback. The committee, however, also noticed that the existence of a relevant

evaluation form did not always lead to adequate scores or insightful motivations. In fact, the committee members found that in 9 out of 15 theses, the final grade was in line with their own appreciation while the summary feedback forms had provided insightful information in a similar number of cases. Some theses had been scored too generously, according to the committee, and certain written appreciations did not match with the (overall) score. In a few cases it was not clear how the individual criteria were weighted, nor how assessors had obtained consensus.

According to the programme team, it is up to the assessors to weigh the different criteria and students are aware of this. The criteria and rubrics constitute the overall framework for assessment, while there is some room for discretion. During the thesis trajectory students can ask / be instructed where there is room/need for improvement. Finally, the committee was informed that the presentation is not an explicit part of the final score, but constitutes more a rounding exercise given that students can only present theses that are deemed of sufficient quality.

During the discussion on-site, the programme team indicated – and alumni confirmed – that students do get extensive and constructive feedback orally or by e-mail during the thesis trajectory and again after the final presentation. The committee was also informed that SBE and EOR are awaiting the introduction of a VU-wide online thesis trajectory platform. This initiative was put temporarily on hold during the COVID-19 pandemic and should facilitate among others consistent qualitative feedback by the assessors. Nonetheless, the programme team also acknowledged the main criticisms of the committee, i.e. that there is room for more calibration across all staff involved in EOR thesis assessment (to ensure adequate scoring) and for better motivating the individual scoring criteria in the summary feedback.

### **Quality assurance**

The committee gathered from the written materials that different stakeholders are involved in assuring the quality of assessment: there is first and foremost the Examination Board, but also the programme director and individual examiners play a role. The Examination Board supervises the examination process and carries final responsibility for safeguarding the quality control of assessment and examinations. It investigates systematically whether the process of assessment within SBE is carried out according to predefined criteria. These criteria are well established and include the reliability and validity of the tests. In the event that tests are not up to standard, the Examination Board reports to the programme director and the examiner and issues interventions for improvement.

During the site visit, the committee met with representatives of the Examination Boards. It gathered from the written materials and the discussion that these Boards – there is one for all publicly funded degrees and another one for privately funded programmes – fulfil their legal tasks adequately and have relevant expertise regarding assessment, fraud and legal issues. The external member has extensive assessment expertise. It is a conscious decision of SBE to have several programmes supervised by one Examination Board as this leads to greater uniformity, clarity and authority.

The committee noticed, moreover, that since the previous accreditation visit, the Examination Boards have grown in capacity and competence, taking on board the recommendations of the previous NVAO report. In terms of assessment quality assurance, the examination board currently does not only guard the quality of assessment, but also looks into assessment policy, assessment plans, assessment construction, and organization. The committee also established with satisfaction that over the past few years the Examination Boards have stepped up the inspections of course examinations and theses.

The Examination Board for publicly funded degree programmes is in charge of assuring the assessment in the EOR programme. The committee noticed from the materials and discussions that the Examination Board follows-up attentively any issue that may pop up in the programme and that the EOR programme has been served with similar intensity as all other publicly funded degree programmes. Just as for other programmes, the Examination Board has paid considerable attention to online assessment recently and informed students and staff about plagiarism. According to the committee the quality assurance of EOR assessment is in competent hands with the Examination Board.

### **Considerations**

Based on the written materials and the discussions on-site, the assessment committee considers that assessment at the BSc EOR is robust. This appreciation is based first and foremost on the fact that both course and thesis assessment are embedded in well-established policies and frameworks at the level of the university and the school. The sample of assessment formats the committee has reviewed shows that the assessment principles and policies are properly implemented in the course assessments. The EOR assessment plan, moreover, demonstrates that course learning goals are assessed adequately. This, in turn, ensures that the learning outcomes at programme level are covered.

Furthermore, the committee considers that both school and programme have made considerable efforts since the previous accreditation to bring assessment quality up to par. Similarly, the Examination Board has grown in capacity and competency, as demonstrated by the variety of assessments tasks it has been assuming over time. The committee welcomes these developments and is convinced that the Examination Board is very capable to assure the assessment quality of the BSc EOR programme.

In so far as thesis assessment is concerned, the committee has mixed feelings. On the positive side, the EOR programme can rely on a solid thesis procedure and policy. It is using a relevant evaluation form with adequate criteria and an extensive assessment matrix that allows for individual appreciations and feedback of the supervisor and the second reader. On the flip side, the sample of thesis assessments reviewed by the com-

mittee showed that there is room for more calibration across staff involved in EOR thesis assessment and for better motivating the individual scoring criteria in the summary feedback.

In view of the above findings and considerations, the assessment committee judges that **the BSc EOR programme meets standard 3, assessment.**

## 4. Achieved learning outcomes

The BSc EOR programme is set up in such a way that both EOR and EDS students achieve the intended learning outcomes. This was confirmed by the committee when it established through its review of a sample of bachelor theses that the thesis quality in the EOR programme is satisfactory to good. The discussion with alumni confirmed that the programme prepares students for a relevant academic or professional career. In this way the BSc EOR lives up to its objective to deliver well-rounded quantitative economists who upon graduation either pursue a relevant master programme or become responsible practitioners with a quantitative profile. According to the committee, **the BSc EOR programme meets this standard.**

### Findings

There are two ways to establish whether the programme learning outcomes have been achieved – through a quality review of the final products and through checking what graduates are doing after they finished the programme. The committee has looked at both elements when assessing the end level qualifications of the BSc EOR programme.

### Thesis quality

The bachelor thesis is seen as the ultimate test whether students have achieved the EOR programme learning outcomes. In the EOR thesis all learning outcomes are addressed. As part of their external assessment, committee members reviewed a sample of 15 BSc EOR theses. The sample selection was based on a list featuring 81 students who graduated in the academic year 2021-22. The selection was representative in terms of scoring and specialisation, and the theses had been assessed by a variety of supervisors and second readers.

According to the committee, fourteen of the fifteen theses were clearly of sufficient quality to pass. One of the theses, which had obtained a low pass score, was reallocated internally for a second opinion. Acknowledging that this thesis was indeed (by far) the weakest of the sample, the committee found that overall, the thesis quality in the BSc EOR programme was satisfactory to good. EOR students invariably demonstrate through their bachelor thesis in the domains of econometrics, operations research or data science that they

have achieved the programme learning outcomes.

The committee's overall positive impression on thesis quality seems to confirm that the efforts of the programme and the Examination Board since the previous accreditation visit are paying off. The Examination Board investigated a sample of completed thesis forms in the year 2019-2020, while an external assessor reviewed some BSc EOR theses as part of the programme's mid-term review. In both cases the results were positive, i.e. in line with the original assessment.

### Graduate performance

The committee gathered from the written materials that the EOR programme opens up various career opportunities. Students will have learned to think and work at an elementary academic level, and the curriculum contents are such that they yield versatile graduates who can find their way on the labour market. Although there are career opportunities for academic bachelor graduates, notably in the current climate of labour shortage, the number of students who enter the labour market immediately after EOR remains limited. In fact, most Dutch companies prefer to recruit graduates with a master's degree.

Hence, the committee noticed that the vast majority of BSc EOR graduates move on to a master's programme in the Netherlands (90%). Most graduates in either EOR or EDS stay at VU for the MSc EOR (71%), while others enrol for example with the MSc Finance, Mathematics, Business Analytics

and Artificial Intelligence. In addition, the programme grants access to the selective two-year Research Master in Economics offered at the Tinbergen Institute.

During the visit, EOR alumni indicated to the committee that the programme did prepare them adequately for both labour market and master study. Both current and past students referred in positive terms to the role of individual lecturers, as well as to the SBE Career Services, the study association Kraket and the alumni association Extrie. In this respect, the committee observed that the EOR programme lives up to its objective to deliver well-rounded quantitative economists who upon graduation either pursue a relevant master programme or become responsible practitioners with a quantitative profile.

## Considerations

Based on the written materials, the thesis sample and the discussions on site, the committee considers that upon graduation, EOR students have achieved all programme learning outcomes. The thesis review has shown that students are capable of writing good quality final products. The discussion with alumni confirmed the committee's finding that the BSc EOR programme at VU prepares students for a relevant academic or professional career.

In view of the above findings and considerations, the assessment committee judges that **the BSc EOR programme meets standard 4, achieved learning outcomes.**





## Attachments

## Attachment 1 Assessment committee

### **Hans van Ees, chair**

Prof. dr. van Ees is emeritus professor Corporate Governance and Institutions at the University of Groningen and former Dean of the University College Groningen. His research deals with corporate governance, board of directors and sustainable corporate performance. Hans has extensive accreditation experience.

### **Niels Hermes, member**

Prof. dr. Hermes is professor International Finance at the University of Groningen. His expertise lies in the fields of corporate governance, microfinance, international finance, financial systems and economic growth. Niels has extensive accreditation experience.

### **Eelke de Jong, member**

Prof. dr. de Jong is emeritus professor of International Economics at Radboud University in Nijmegen. His research focuses on the role of culture, in the sense of norms and values, in economic behaviour. Eelke has extensive accreditation experience.

### **Alain Hecq, member**

Prof. dr. Hecq is professor of Applied Econometrics at Maastricht University. His research focus is on applied time series analysis with a particular focus on the investigation of co-movements, mixed frequency data and non-causal models.

### **Judith Kikkert, student-member**

Ms Kikkert is a master student MSc Management, Economics and Consumer Studies at Wageningen University and student-member of the university-wide Board of Education. Judith holds a bachelor's degree *Economie en Beleid* from Wageningen.

### **Mark Delmartino, external secretary**

Mark Delmartino is owner of the Antwerp-based company MDM CONSULTANCY. As certified NVAO secretary he regularly supports assessment committees.

All committee members and the secretary have signed a declaration of independence. The assessment committee has been submitted to, and validated by, NVAO prior to the site visit.

## Attachment 2 Site visit programme

Venue: VU Amsterdam, De Boelelaan, Amsterdam

### Wednesday 16 November 2022

- 08.30 Arrival of the committee and set-up
- 09.00 Session with Faculty Board
- 10.00 Session with Management BSc EBE, BSc EOR & MSc EOR
- 11.00 Session with Students and Alumni BSc EBE, BSc EOR & MSc EOR
- 12.00 Session with Staff BSc EBE, BSc EOR & MSc EOR
- 13.00 Lunch and internal meeting
- 14.00 Session with Management MSc RMFI
- 14.40 Session with Students and Alumni MSc RMFI
- 15.20 Session with Staff MSc RMFI
- 16.00 Break and internal deliberation
- 16.30 Return meeting with Management MSc RMFI
- 17.00 Internal deliberation
- 17.30 End of day 1

### Thursday 17 November 2022

- 08.30 Arrival of the committee and internal meeting
- 09.00 Session with Examination Board
- 10.00 Session with Management MSc ECO & MSc STEE
- 10.50 Session with Students and Alumni MSc ECO & MSc STEE
- 11.40 Session with Staff MSc ECO & MSc STEE
- 12.30 Lunch and internal meeting
- 13.30 Session with Management MSc Marketing FT + PT
- 14.20 Session with Students and Alumni MSc Marketing FT + PT
- 15.10 Session with Staff MSc Marketing FT + PT
- 16.00 Break and internal deliberation
- 16.30 Return meeting with Management MSc ECO & MSc STEE
- 17.00 Internal deliberation
- 17.30 End of day 2

### Friday 18 November 2022

- 08.30 Arrival of the committee and internal meeting
- 09.00 Session with Management MSc FIN, MSc AC & MSc ITACA
- 10.15 Session with Students and Alumni MSc FIN, MSc AC & MSc ITACA
- 11.30 Session with Staff MSc FIN, MSc AC & MSc ITACA
- 12.45 Lunch and internal deliberation

14.00 Return meeting with Management MSc ITACA  
14.30 Internal deliberation  
15.30 Preliminary feedback  
16.00 Development Dialogue Executive Programmes  
17.00 Development Dialogue Funded Programmes  
18.00 End of site visit

A list with the names of the participants is available at AeQui.

## Attachment 3 Overview of materials

### Information materials

Self-evaluation report BSc Econometrics and Operations Research, VU School of Business and Economics, 2022.

### Appendices to the self-evaluation report

- Intended Learning Outcomes
- Programme 2021-2022
- Course descriptions 2021-2022
- Assessment plan 2021-2022
- Thesis Manual and thesis assessment form 2021-2022
- Teaching and Examination regulations 2021-2022
- Regulations and Guidelines regarding examinations SBE 2021-2022
- Overview of academic staff including quality
- List of all graduates in academic years 2020-2021 & 2021-2022
- Intake, drop out and success rates
- AACSB Memorandum

### Additional materials

Following materials were made available online for the committee:

- VU Assessment Policy
- SBE Assessment Policy
- Annual Reports Examination Committees
- Annual Reports Programme Committees

### Graduation products

For every programme under review, the assessment committee studied a sample of graduation projects. In case of the BSc EOR programme, the committee reviewed 15 bachelor theses which had been successfully submitted by students in the academic year 2021-2022. The selection was representative in terms of scoring and specialisation, and supervised by a variety of staff.

A list with student numbers is available at AeQui.