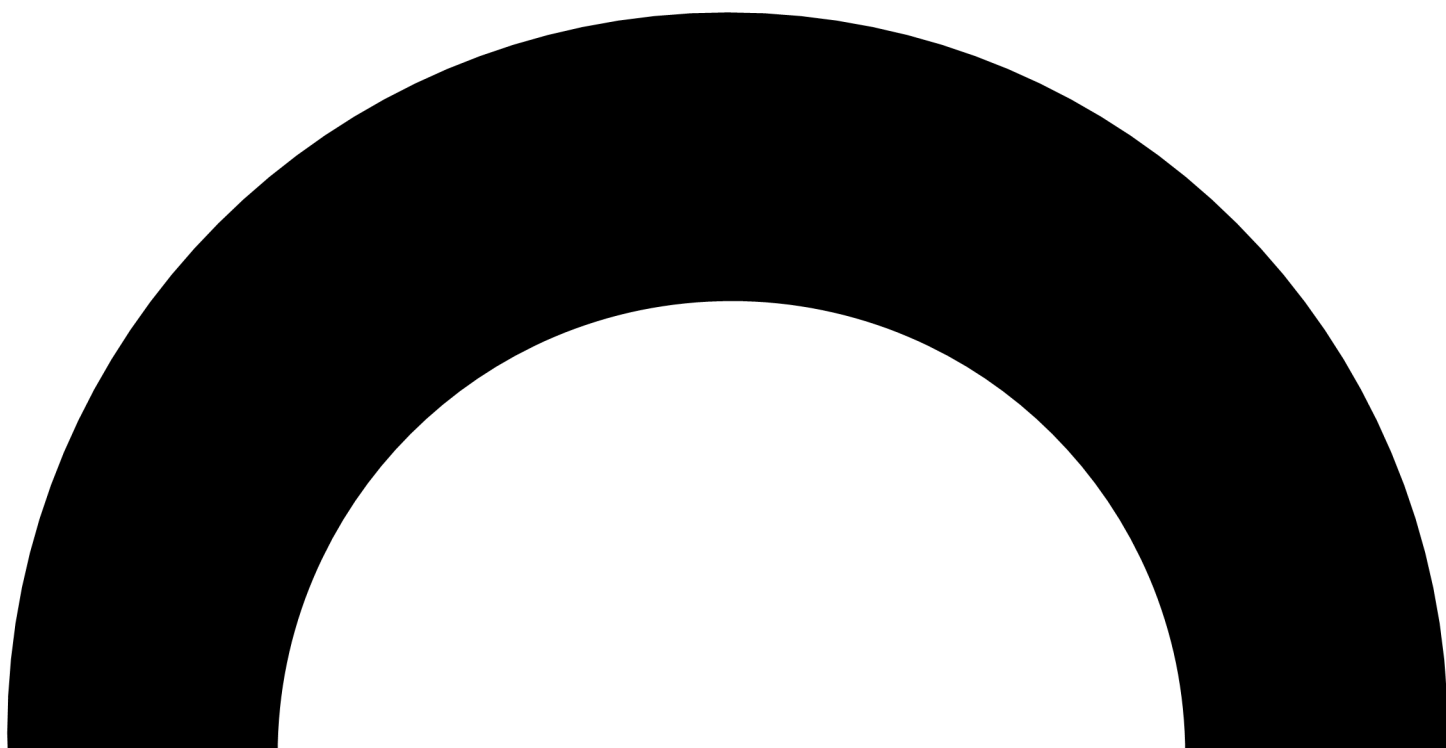# NOVA

NOVA SCHOOL OF
BUSINESS & ECONOMICS

Assurance of Learning

2023/2024 academic year

2025-02-27

About

This document offers a detailed account of the Assurance of Learning (AoL) developments and key changes for the 2022/2023 academic year. It outlines the processes and methodologies implemented during this period, ensuring clarity and transparency in our approach.

Furthermore, it provides a comprehensive analysis of the results from the 2022/2023 academic year assessments, highlighting significant outcomes and findings that are essential for ongoing improvement.

Based on the insights gathered, the document proposes well-considered recommendations for strategic initiatives and enhancements for the 2023/2024 academic year. These recommendations are designed to boost the effectiveness of the AoL process and align with our broader academic objectives, aiming to continuously improve the quality of education provided.

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2 Assurance of Learning

Assurance of Learning (AoL) is a continuous improvement process designed to evaluate whether students are effectively acquiring the competencies and skills that their programs intend to impart, and to adjust pedagogical practices accordingly. The goal of AoL is not to replace existing quality control mechanisms[1] but to enhance them.

Initially, quality control in education primarily focused on student satisfaction, course instructors' self-assessments, and adherence to pre-defined procedures. However, there was no explicit, systematic process for assessing the actual knowledge and competency acquisition by students. Such assessments were indirectly made by faculty and the academic director, based on the assumption that if individual course subjects aligned with program goals, and students were passing these courses, they would necessarily be acquiring the expected competencies and skills. This assumption underpinned the previous AoL approach, which relied on instructors' self-assessments and peer reviews. While this approach was supported by the faculty's and academic director's commitment to excellence and student development, it lacked direct and systematic evidence of actual competency acquisition.

The Assurance of Learning process seeks to address this gap by providing a more structured and evidence-based assessment framework that complements the existing quality controls, ensuring a more robust and transparent measure of educational outcomes.

2.1 Goals

The primary objective of the Assurance of Learning (AoL) is to ensure that students meet predefined program-level learning outcomes and to foster continuous quality improvement within academic programs. To achieve this, AoL first establishes specific Learning Outcomes (LOs) for each course. It then employs a predefined sampling strategy to assess the extent to which these outcomes have been achieved.

Assessment occurs at the individual course level, with each course mapped against the overall program LOs to measure its contribution. Additionally, indirect measures of student learning are incorporated through surveys conducted by the Career Placement department, which gathers feedback from corporate recruiters, also alumni who have graduated within the last three years are surveyed. They are asked to rate, on a Likert scale, their agreement with statements describing their proficiency in each LO.

This data triangulation strategy aims to create an interactive process where the acquisition of each LO is measured. The process identifies and addresses gaps, enhancing the educational experience.

Currently, we are in a development phase focused on ensuring that LOs are a central consideration as faculty members develop syllabi. Faculty are expected to integrate LOs into their course materials, planning, and assessment practices. Additionally, any gaps identified in previous assessments are addressed by the Academic Directors during the program curriculum design and individual syllabus development phases.

It is also important to recognize that program LOs are not static; they evolve over time to reflect changing student and market needs. Eventually, these LOs will need to be revisited and revised. In this context, the role of AoL is to ensure coherence across the program and course structures, swiftly incorporating any revisions to the LOs into the program structure and course content, and ensuring that outdated LOs are fully replaced by the new standards.

3 Structure

To maintain coherence with both the school's ethos and the specific objectives of each program, the Assurance of Learning at Nova SBE is structured using a hierarchical approach (Figure 1). This structured approach begins with the core school values and cascades through program objectives down to specific learning outcomes.

The process begins with our foundational school values and their reflection in the specific program objectives. These objectives are then mapped to LOs, ensuring that the core measures of the AoL process not only reflect Nova SBE's values but also effectively meet desired educational and professional standards.

Further, we meticulously select Learning Outcomes for each academic year and identify precise moments within courses to assess these outcomes. This selection process is crucial for gathering relevant data and ensuring that the assessments accurately reflect the educational impact on our students.

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[1] Nova SIMAQ - NOVA's Internal Quality Monitoring and Evaluation System. It is aligned with the University's Strategic Plan, covering all its activities and ensuring the involvement of all stakeholders (internal and external). It aims at the continuous improvement of NOVA's Quality, responding to the legal requirement of implementing its own Quality assurance systems.
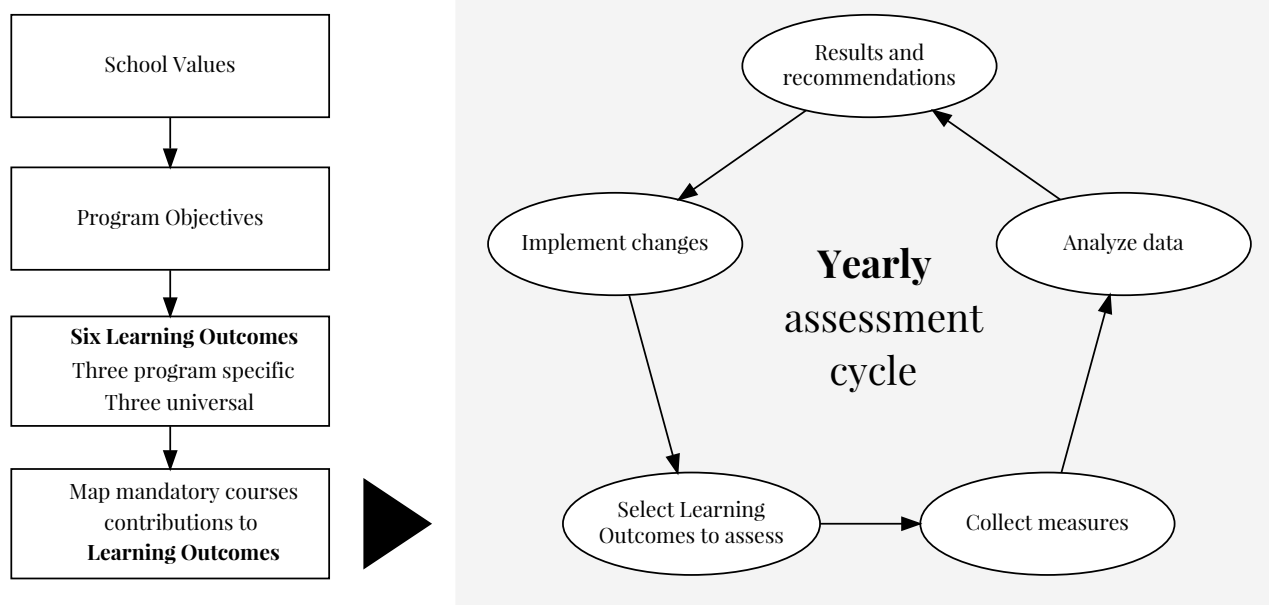
Figure 1: Assurance of Learning design

This leads into our yearly evaluation cycle, where we collect and analyze data to measure how well these outcomes are being achieved. This cycle is not only vital for continuous improvement but also ensures that our programs adapt to evolving educational and industry standards.

3.1 School Values

We initiated our approach by focusing on our core values, which are integral to everything we do. As such, it's essential that the learning outcomes of our programs align with these foundational principles:

- Rigor
- Impact
- Worldliness
- Vanguardism
- Connectivity

This alignment ensures not only coherence with our school's ethos but also facilitates a structured and recognizable framework across all courses. This framework supports an easier understanding and implementation of the Assurance of Learning (AoL) process.

Building on this foundation, we analyzed the current program objectives submitted to A3ES, the national accreditation agency. These objectives were crafted with Nova SBE's values in mind. Our analysis revealed a common value matrix that intersects all programs and should be mirrored in the programs' Learning Outcomes (LOs). We also uncovered a latent structure that underlies the specific objectives of each program.

Leveraging these shared values and the underlying structure common to all programs, we have developed six Learning Outcomes (LOs) for each program, ensuring that our educational goals are both ambitious and aligned with our institutional values.

3.2 Program Learning Outcome structure

For each program, six learning outcomes have been established:

- Three are program-specific, meticulously designed to reflect the unique characteristics and educational objectives of each individual program.
- Three are universal, shared across all school programs, fostering a cohesive educational experience that embodies Nova SBE's ethos.

This dual-layered framework not only captures the unique identity and specific learning outcomes of each program but also integrates Nova SBE's core values and DNA into every facet of our curriculum. This approach ensures that our overarching values are consistently represented across all program offerings, aligning individual program objectives with the broader institutional goals.

3.2.1 Specific Learning Outcomes

The three specific learning outcomes differ from course to course at Nova SBE, yet they share a consistent thread that aligns with the school's core values. This thread not only unites all courses but also shapes how students approach their educational and personal development within the institution.

Accordingly, the specific learning outcomes for each course are strategically defined as follows:

- **I - Context Understanding**: Students develop a nuanced understanding of the broader context surrounding the subject area. This encompasses comprehending the environmental, economic, social, and technological factors that impact the field, equipping students with the ability to assess and interpret the dynamics that influence their studies.
- **II - Tool Application**: Students achieve proficiency in applying specialized tools and techniques learned during the course. This outcome focuses on the practical application of these tools, ensuring that students can effectively employ them in real-world situations, thereby bridging the gap between theoretical knowledge and practical implementation.
- **III - Theory Application**: Students are skilled at translating theoretical concepts into practical solutions. This involves applying academic theories to real-life challenges, demonstrating a deep understanding of how theoretical frameworks can be utilized to solve concrete problems.

These outcomes are crafted to ensure that while each course maintains its unique focus and depth, the overall educational experience at Nova SBE remains consistent, integrated, and aligned with the school's values. This approach not only reinforces the relevance of each course within the broader educational aims of Nova SBE but also enhances the students' ability to apply their learning in varied and complex real-world scenarios.

3.2.2 Universal Learning Outcomes

Nova SBE is committed to cultivating professionals who embody a proactive 'go-get-it' attitude. We strive to develop individuals who engage in assertive and effective teamwork, possess the skills to both lead and collaborate, and recognize that their learning journey extends far beyond the classroom. With the mindset and tools to ensure continuous personal and professional growth, our students are prepared to make lasting impacts.

Another key aspect that defines Nova SBE's ethos and internal culture is its commitment to having a positive impact. In line with this, during the academic year of 2022/2023, we introduced an additional Learning Outcome, LO VI, focused specifically on the dimensions of positive impact and sustainability. This new LO underscores Nova SBE's dedication to instilling these crucial values in its students, ensuring that they not only succeed in their careers but also contribute positively to society and the environment.

Accordingly, the shared learning outcomes have been defined to reflect these ambitions:

- **IV - Interpersonal and Teamwork Skills**: Students will demonstrate effective interpersonal and communication skills, fostering productive teamwork and the capacity to pursue collaborative efforts successfully.

- **V - Intellectually Curious and Autonomous**: Students will develop analytical, critical thinking, and problem-solving skills that facilitate lifelong learning and autonomous professional development.

- **VI - Sustainable Values for Positive Impact**: Students will gain a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to drive positive and transformative influences within projects and organizations.

These outcomes ensure that our graduates not only meet the current standards of professional excellence but are also equipped to adapt and thrive in an ever-changing global landscape.

3.3 Courses and Program Learning Outcomes

At the start of the Assurance of Learning process in 2021/2022, Learning Outcomes were carefully mapped to each program's mandatory courses and validated by Academic Directors to ensure every course supported the overall program goals. These mappings were rigorously confirmed for accuracy and relevance. Following any changes to mandatory courses—most notably the BSc restructuring in 2023/2024—the new courses were re-mapped and the updated maps were validated by Academic Directors.

Starting in the 2023/2024 academic year, only two Learning Outcomes will be directly assessed each year—one specific to the program and one universal.

3.4 Defining the Learning outcomes

For each learning goal, three proficiency levels were defined based on Bloom's Taxonomy, structured as follows:

- **Developing**: The student is aware of and recognizes the importance of the competencies and skills defined by the Learning Outcome (LO).
- **Proficient**: The student can apply the competencies and skills defined by the LO in a limited capacity.
- **Expert**: The student has developed a deep knowledge and understanding of the competencies and skills defined by the LO and can apply them autonomously in various contexts beyond those explicitly taught in the program.

3.5 Assessing the Learning Outcomes

For the 2022/2023 cycle, we began using three distinct data sources to assess learning outcomes (Figure 2). To ensure consistency and clarity, the results from all sources are consolidated into a qualitative scale (A, B, C, F), providing an intuitive overview of performance. This section outlines the analysis process for each data source.
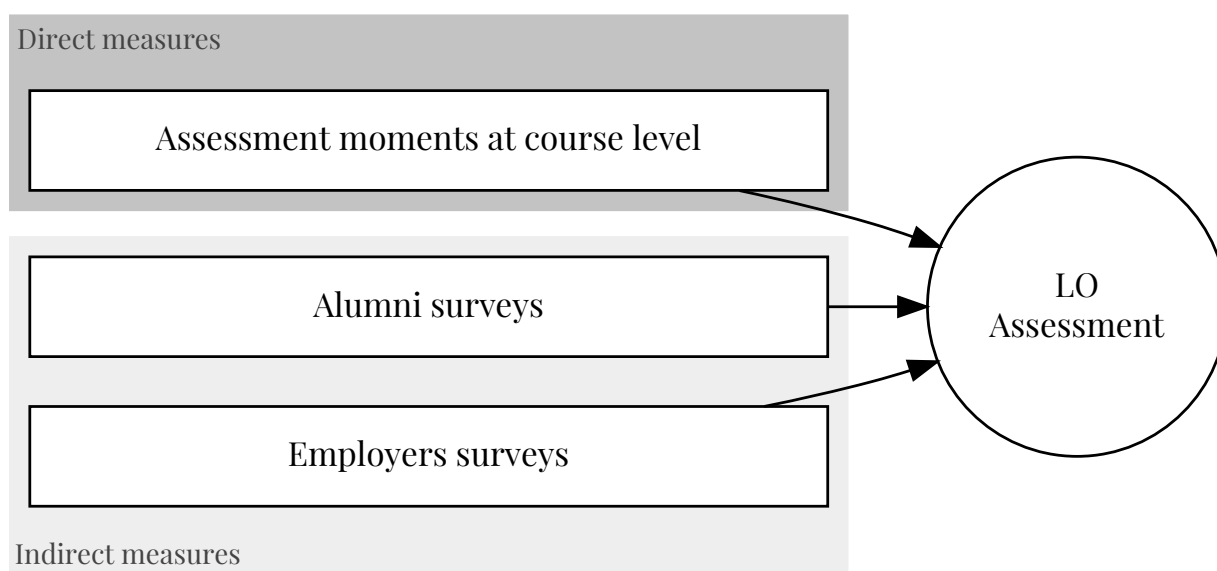

Figure 2: Assessment data sources

Direct measures assess student learning by evaluating real work—like tests, presentations, or projects—that align with course objectives (Figure 2). They provide clear evidence of student skills and help validate our curriculum while highlighting areas that need improvement.

Direct measures provide an objective snapshot of student learning through tests, projects, and presentations. However, they capture only a single point in time, and differences in course difficulty mean that systemic issues only emerge when data is collected over several years. This long-term approach helps us understand learning trends and curriculum effectiveness.

Indirect measures, on the other hand, reveal how students, alumni, and employers perceive student competencies. For the 2023/2024 cycle, we have two years of indirect measure data. Tools like alumni and employer surveys show how well students develop the desired skills. Employer feedback is especially valuable because it offers an external view of how education meets real-world demands.

While indirect measures don't assess student learning directly, they provide a broader picture of a program's impact. They complement direct measures by ensuring that the curriculum is both academically rigorous and aligned with industry needs.

Combining both direct and indirect measures gives us a well-rounded view of educational effectiveness. This approach reduces bias, improves reliability, and helps us identify strengths and areas for improvement in our programs, ensuring our educational strategies meet both academic and professional standards.

3.5.1 Direct measures

After mapping how each course contributes to the program's defined Learning Outcomes (LOs), and with the assistance of the Academic Director, courses to be assessed were selected. For each chosen course, the professor responsible was directly contacted to help identify the assessment moment that best captures the relevant LO. Options for these assessment moments include:

- Exam
- Mid-term
- Term-paper
- Group project
- Specific exam question
- Peer assessment

By integrating the measurement of Learning Outcomes into existing assessment formats, we aim to minimize disruption to the schedules of both professors and graders. Additionally, as the awareness of course learning outcomes becomes more ingrained in all parties involved, we anticipate a natural evolution where course assessments more effectively reflect and measure the intended outcomes.

Defining targets   Assessment moments will produce grades ranging from 0 to 20. For grading systems that do not adhere to this format, grades will be proportionally converted to this scale. To align these grades with the Assurance of Learning (AoL) goals, we have categorized them into three brackets:

- **Below Target**: Grades below 12, indicating that the student has either failed or barely passed the course.
- **On Target**: Grades between 12 and 16, signifying satisfactory to good performance.
- **Above Target**: Grades above 16, denoting excellent performance.

To mitigate the potential for grade inflation and avoid it as an incentive, we have chosen to use the Total Percentage of Grades on Target and Above Target (TTAT) as the primary indicator. This metric, representing the combined percentage of grades that are On Target and Above Target, reflects the proportion of students achieving a passing grade in the assessment.

Evaluating the results   To determine the extent to which the Learning Outcomes (LOs) are being achieved, the Total Percentage of Grades on Target and Above Target (TTAT) will be assessed according to the following scale:

- **A**: More than 90% TTAT - LO objectives fully achieved.
- **B**: Between 80% and 90% TTAT - LO objectives achieved.
- **C**: Between 60% and 80% TTAT - LO objectives insufficiently achieved.
- **F**: Below 60% TTAT - LO objectives not achieved.

This scale ensures a clear and measurable indicator of student performance relative to the set learning objectives.

> **i** Learning Outcomes that receive an 'F' rating will be reassessed in the following academic year during the same course and assessment moment, even if no assessment was originally planned for that LO. Then, in academic year n+2, if the LO still receives an '**F**' or '**C**' rating, it will be reassessed again in a different course. Similarly, LOs rated as '**C**' will be reassessed in a different course in the following academic year, with an additional assessment in year n+2 only if they again receive a '**C**' or '**F**' rating.

3.5.2 Indirect measures

Indirect measures at Nova SBE utilize statement-based surveys where participants rate their agreement with statements that describe mastering the competencies of each Learning Outcome (LO). Administered biannually, these surveys are designed to capture a comprehensive overview of the alumni and employers' perspectives. Alumni surveys are typically integrated with end-of-program evaluations, while employer surveys are conducted during annual career fairs to ensure high participation rates and relevance. This method allows for the continual assessment of all Learning Outcomes each year, providing a consistent and reliable flow of feedback to inform program enhancements.

Alumni surveys: The alumni surveys are comprised of straightforward, statement-based questionnaires in which recently graduated alumni rate, on a Likert scale from 1 to 6, their agreement with statements describing their achievement of the expert-level for each Learning Outcome (LO).

This self-assessment serves as an indirect method for evaluating each LO, offering insights into the effectiveness with which the Learning Outcomes are being realized. The surveys are administered twice annually and are combined with other end-of-program questions that are designed to evaluate additional quality aspects of the programs.

Given that this is an indirect measure requiring minimal time commitment from survey participants, it contrasts with the more targeted, direct LO assessments where only a sample of LOs is evaluated each year (four cycle assessments, plus additional reassessments as needed). Consequently, this method enables the comprehensive assessment of all LOs in every annual cycle.

Employers surveys: Like the alumni surveys, the employers' surveys consist of statement-based questionnaires. In these surveys, employers rate, on a Likert scale from 1 to 6, their agreement with statements that describe how well they believe the alumni have achieved the expert-level for each Learning Outcome (LO).

This method serves as an indirect way to evaluate each LO, providing insights into the practical effectiveness of the Learning Outcomes as perceived by employers. These surveys are conducted twice a year and are integrated with other queries designed to assess additional quality dimensions of the programs from an employer's perspective.

Like the alumni surveys, this is an indirect method requiring minimal time commitment from the participants, allowing for a comprehensive assessment of all LOs in each annual cycle. To maximize efficiency and ensure a high volume of responses, the surveys are conducted in person during the two career fairs held annually at Nova SBE's campus. Recruiters were initially asked to specify from which degree programs they recruit graduates. Subsequently, they were directed to complete surveys pertaining specifically to those programs.

Defining targets: The indirect measures utilized in the surveys involve a Likert scale from 1 to 6, where respondents indicate their agreement with statements that assess the mastery of each Learning Outcome (LO). To align these responses with the Assurance of Learning (AoL) goals, we categorize them into three distinct performance brackets:

- **Below Target**: Responses below 4, indicating that the perceived mastery of competencies is inadequate or just below satisfactory.
- **On Target**: Responses between 4 and 5.5, signifying that the mastery of competencies is viewed as satisfactory to good.
- **Above Target**: Responses of 5.5 or higher, denoting excellent perceived mastery of competencies.

To mitigate the potential for bias and ensure a balanced evaluation, we utilize the Total Percentage of Responses on Target and Above Target (TTAT) as the primary indicator. This metric reflects the combined percentage of responses falling within the On Target and Above Target categories and provides a clear measure of how well students believe they have achieved and can apply the program's Learning Outcomes in real-world contexts.

Evaluating the results: Similarly to the direct measures, the evaluation of indirect measures also uses the Total Percentage of Responses on Target and Above Target (TTAT) to determine the extent to which the Learning Outcomes (LOs) are being achieved. For a matter of convenience and to maintain coherence across different types of assessments, the responses are assessed using the same thresholds as those applied in direct measures:

- **A**: More than 90% TTAT - LO objectives fully achieved.
- **B**: Between 80% and 90% TTAT - LO objectives substantially achieved.
- **C**: Between 60% and 80% TTAT - LO objectives insufficiently achieved.
- **F**: Below 60% TTAT - LO objectives not achieved.

This approach ensures that both direct and indirect measures are aligned, providing a consistent and comprehensive assessment of student performance relative to the set learning objectives.

3.6 Yearly assessment cycle

The Yearly Assessment Cycle is a structured, continuous process designed to evaluate and enhance the effectiveness of our educational programs. This cycle ensures that we consistently monitor, analyze, and improve the learning outcomes and overall quality of education at Nova SBE. The cycle follows the PDCA (Plan-Do-Check-Act) methodology, a proven framework for continuous improvement.

The Yearly Assessment Cycle is an ongoing process, fostering a culture of continuous improvement. Each iteration of the cycle builds on the previous one, incorporating new insights and evolving to meet the changing needs of students and the industry. By maintaining this dynamic approach, we ensure that Nova SBE remains at the forefront of educational excellence.

The key stages of the cycle are:

3.6.1 Select Learning Outcomes to Assess

Check: The first step in the cycle involves selecting the specific Learning Outcomes (LOs) that will be assessed during the year. This selection is guided by the need to cover different LOs systematically over time, ensuring a comprehensive evaluation of all program objectives. By rotating the focus of assessment, we ensure that each LO is thoroughly examined and validated periodically. Additionally, any LOs and assessment moments flagged for reassessment in previous cycles will be included to address any identified gaps and verify improvements.

3.6.2 Collect Measures

Check: In this stage, we gather data through various direct and indirect measures. Direct measures may include exams, projects, and presentations that provide tangible evidence of student competencies. Indirect measures involve feedback from alumni and employers through surveys, which offer insights into the perceived effectiveness of the educational programs. This combination of data sources helps to create a well-rounded understanding of how well students are meeting the LOs.

3.6.3 Analyze Data

Act: Once the data is collected, it is analyzed to identify trends, strengths, and areas needing improvement. This analysis involves comparing the collected data against predefined benchmarks and standards. Based on the defined criteria, data points are classified into "below target," "on target," or "above target" categories. By calculating the total percentage of on target and above target (TATT), a qualitative evaluation of A, B, C, or F is assigned to the assessed LO. This process is performed for both direct measures and indirect measures, ensuring a comprehensive understanding of the extent to which the LOs are being achieved and identifying any gaps in the curriculum or instructional methods.

3.6.4 Results and Recommendations

Plan: Based on the data analysis, we identify potential structural flaws in both the curricula and the courses themselves. By combining the evaluation and reevaluation of direct measures with indirect measures, we aim to understand if an issue is systematic or focused on a specific course or just a particular assessment moment. Based on this understanding, we select LOs and assessment moments for reassessment in the coming yearly cycles and generate reports that pinpoint where the Academic Directors need to focus their attention for continuous improvement of the programs.

These findings are shared with the academic directors, relevant faculty and program administrators to guide their decision-making processes.

3.6.5 Implement changes

Do: The final stage of the cycle involves implementing the recommended changes. Based on the identified issues, the academic directors of each program will meet with the relevant faculty to pinpoint root causes and develop improvement plans. If an issue is found to be systemic, the academic directors will review and potentially revise the curricula to address the broader concerns. This critical step ensures that the insights gained from the assessment process are translated into practical, actionable improvements. By closing the loop, we continually refine and elevate our educational offerings, ensuring they align more closely with Nova SBE's values and objectives. This iterative process fosters a culture of continuous improvement, enabling us to adapt and respond to evolving educational needs and industry standards.

4 BSc in Economics

4.1 Program objectives

Based on Nova SBE's core values, the program objectives, which were previously defined and submitted to A3ES and international accreditation agencies, have been systematically mapped. This mapping process, as described in section Section 3.1, ensures alignment with our institutional ethos and educational goals for the program **BSc in Economics**.

The Table 1, below, provides a detailed overview of how these objectives correspond to the learning outcomes, illustrating the integration of Nova SBE's values into our educational framework:

Table 1: Nova SBE's values and Program objectives for the **BSc in Economics**

Objective	Rigor	Impact	Worldliness	Vanduardism	Connectivity
1. A solid knowledge and ability to understand the principles of Economics and their application.	**X**	**X**			
2. Personal skills such as communication skills, ability to work individually and in teams, use of computing techniques including research, processing and data presentation.			**X**		**X**
3. Analytical skills and critical thinking capacities allowing them to build and communicate their own argument.	**X**	**X**			

Objective	Rigor	Impact	Worldliness	Vanduardism	Connectivity
4. A general education in Management and other related disciplines in the areas of Law, Quantitative Methods and Social Sciences, so that they can analyze and develop solutions and emit judgments, taking into account a variety of scientific, social and ethical aspects.			**X**		**X**
5. An education which enables them to communicate information, ideas, problems and solutions to diversified audiences.				**X**	**X**
6. Personal skills that allow for a life-long learning experience in a fundamentally autonomous manner.		**X**		**X**	

4.2 Learning Outcomes

After evaluating the Program Objectives and their alignment with Nova SBE's core values, and considering the Learning Goals structure outlined in the section Section 3.2, we have defined the following **Learning Outcomes** for the program **BSc in Economics**, as detailed in the Table 2.

Table 2: Program Learning Outcomes for the **BSc in Economics**

	Outcome
I	Has broad knowledge of national and international economic context, including social, legal, historial and political issues
II	Is able to use quantitative and technical skills for analyzing economic issues
III	Understands the key theories and practices in core areas of economic science and acquire the ability to apply these to actual situations
IV[1]	Has effective interpersonal and communication skills, including the ability to pursue productive teamwork
V[1]	Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner
VI[1]	Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations

[1]*Universal learning Outcomes shared among all Nova SBE programs.*

These Learning Outcomes are described according to the three levels of proficiency defined in Section Section 3.2: Developing, Proficient, and Expert. Table 3, below, outlines the levels of proficiency for the Learning Outcomes in the **BSc in Economics** program. Each Learning Outcome is mapped across three proficiency levels—Developing, Proficient, and Expert—detailing the competencies students are expected to demonstrate as they progress through the program.

Table 3: Levels of Proficiency for Learning Outcomes in the **BSc in Economics**

	Developing	Proficient	Expert
I	Recognizes that both national and international economic contexts are multidimensional	Describes social, legal, historical, political and ethical context to national and international issues	Demonstrates a broad knowledge of all the knowledge areas impacting both national and international economic context, and understands how they impact each other.
II	Recognizes that economic issues must be addressed in an analytical way	Summarizes economic issues with the help of quantitative and technical skills	Applies analytical skills to economic issues, in order to gain insights
III	Recognizes that key theories and practices of core areas of economic science can produce important insights in to actual situations	Identifies insights in to actual situations with the assistance of key theories and practices of core areas of economic science	Applies key theories and practices in core areas of economic science to actual situations, in order to gain decision making information
IV	Recognizes that productive team work can only be attained with effective interpersonal and communication skills.	Employs interpersonal and communication skills to promote a productive work environment	Through his/hers interpersonal and communication skill, creates a productive teamwork environment.
V	Recognizes that the development of knowledge and new skills is not limited to the subjects presented in the study program	Applies his/hers analytical, critical thinking and problem solving skills to new challenges	Autonomously develops new insights and knowledge by applying his/hers analytical, critical thinking and problem solving skills
VI	Recognizes the importance of ethical, social, and environmental issues and demonstrates a foundational understanding of sustainable business and economic models.	Understands sustainable business and economic models, and effectively applies ethical, social, and environmental principles to decision-making processes.	Possesses a well-established and comprehensive understanding of sustainable business and economic models, consistently upholds a strong commitment to ethical, social, and environmental stewardship, and integrates these principles into decision-making processes.

The defined Learning Outcomes contribute to achieving the program's pre-defined objectives, as detailed in the Table 8 of the Appendix 1.A. Additionally, the specific contributions of individual courses to each Learning Outcome, along with the corresponding levels of proficiency achieved, are detailed in Table 9, located in Appendix 1.A.

4.3 2022/2023 Academic year

For the academic year 2022/2023, in accordance with the procedure defined in section Section 3.5,the following courses were selected for the Learning Outcomes (LO) assessment process for the **BSc in Economics** program. The details of these courses and their respective contributions to the LO assessment are presented in the Table 4 below.

Table 4: 2022/2023 academic year Selected Learning Outcomes and respective courses for the **BSc in Economics**

Semester	Course	Code	Outcome	Level	Assessment	Revaluation
S1	Pinciples of Macroeconomics	1118	**I**	Developing	Midterms	
S2	Calculus II	1310	**II**	Proficient	Exam group I	**X**
S2	Calculus II	1310	**II**	Proficient	Exam group I	**X**
S1	Statistics for Economics and Management	1313	**II**	Proficient	Project	**X**
S1	Statistics for Economics and Management	1313	**II**	Proficient	Project	**X**
S1	Economic history	1124	**III**	Proficient	Midterm	**X**

Semester	Course	Code	Outcome	Level	Assessment	Revaluation
T2	Communication and Leadership	1462	**IV**	Expert	Group Assignment	
T2	Communication and Leadership	1462	**IV**	Expert	Group Assignment	
S2	Data Analysis and Probability	1312	**V**	Proficient	Midterm 2	**X**
S2	Data Analysis and Probability	1312	**V**	Proficient	Midterm 2	**X**
T2	Ethics	1463	**VI**	Expert	Final exam	**X**

4.4 Results

The results for the **BSc in Economics** for the academic year of 2023/2024, were the following.

4.4.1 Direct Measures

Learning Outcome I: Has broad knowledge of national and international economic context, including social, legal, historial and political issues

Course assessed: Pinciples of Macroeconomics

Assessment moment: Midterms
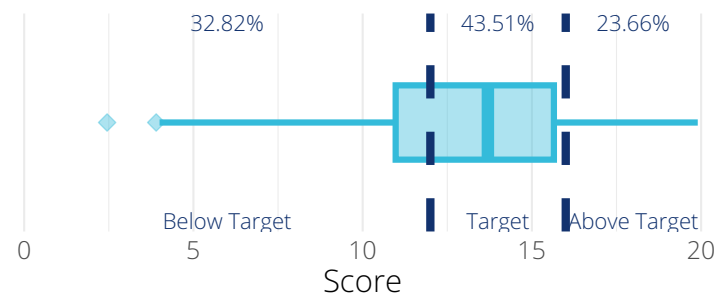
KPIs	
# of assessments[1]	131
Mean score[2]	12.91
Below Target	32.82%
on Target	43.51%
Above Target	23.66%
Total on Target and Above Target	**67.18%**

[1]Total number of assessments used to evaluate the current Learning Outcome.

[2]Value on a scale of 0 to 20.

Learning Outcome IV: Has effective interpersonal and communication skills, including the ability to pursue productive teamwork

Course assessed: Communication and Leadership, Communication and Leadership

Assessment moment: Group Assignment, Group Assignment

KPIs	
# of assessments[1]	20
Mean score[2]	17.30
Below Target	0.00%
on Target	20.00%
Above Target	80.00%
Total on Target and Above Target	**100.00%**

[1]Total number of assessments used to evaluate the current Learning Outcome.

[2]Value on a scale of 0 to 20.

Learning Outcome II - Reassessment: Understands the key theories and practices in core areas of economic science and acquire the ability to apply these to actual situations

Course assessed: Economic history

Assessment moment: Midterm

KPIs	
# of assessments[1]	122
Mean score[2]	12.59
Below Target	31.15%
on Target	61.48%
Above Target	7.38%
Total on Target and Above Target	**68.85%**

[1]Total number of assessments used to evaluate the current Learning Outcome.

[2]Value on a scale of 0 to 20.

Learning Outcome III - Reassessment: Has effective interpersonal and communication skills, including the ability to pursue productive teamwork

Course assessed:

Assessment moment:
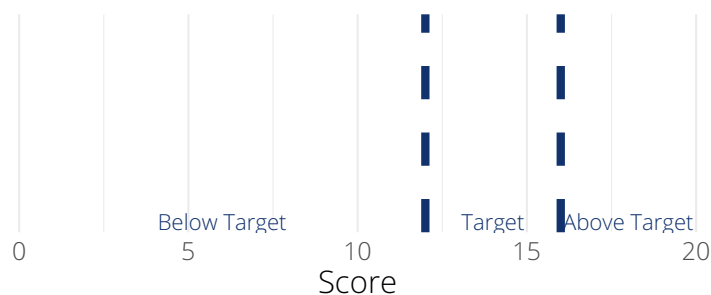
KPIs	
# of assessments[1]	0
Mean score[2]	NaN
Below Target	
on Target	
Above Target	
Total on Target and Above Target	

[1]Total number of assessments used to evaluate the current Learning Outcome.

[2]Value on a scale of 0 to 20.

Learning Outcome V - Reassessment: Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner

Course assessed: Data Analysis and Probability, Data Analysis and Probability

Assessment moment: Midterm 2, Midterm 2

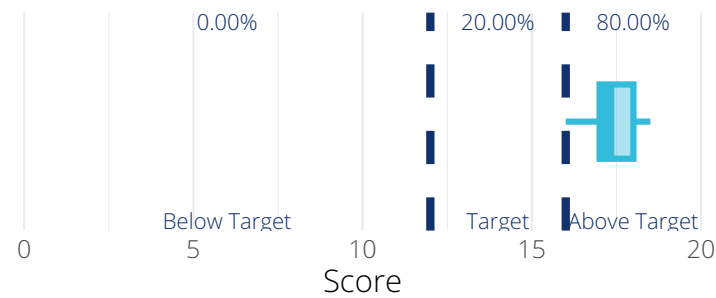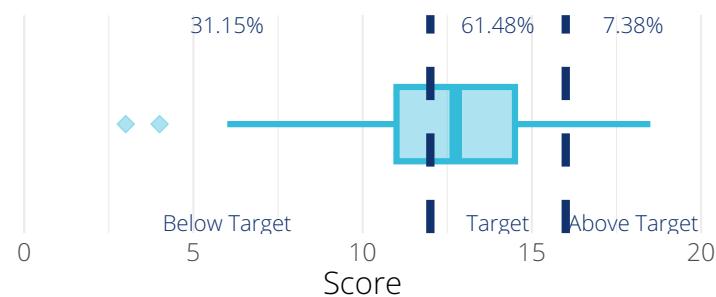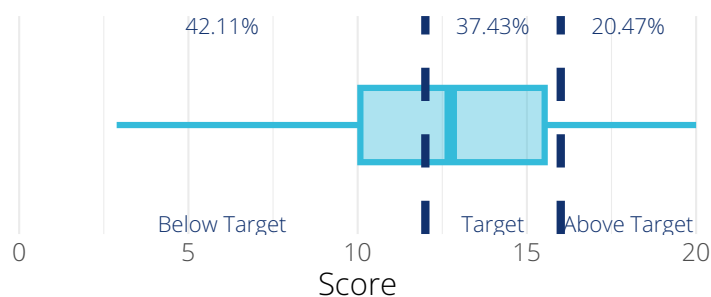| KPIs	
# of assessments[1]	171
Mean score[2]	12.69
Below Target	42.11%
on Target	37.43%
Above Target	20.47%
Total on Target and Above Target	**57.89%**

[1]Total number of assessments used to evaluate the current Learning Outcome.

[2]Value on a scale of 0 to 20.

Learning Outcome VI - Reassessment: Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations

Course assessed: Ethics

Assessment moment: Final exam
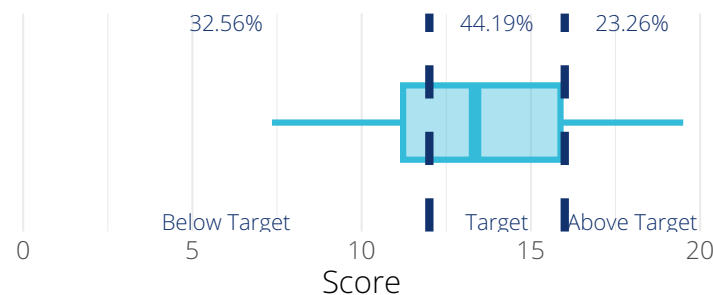
KPIs	
# of assessments[1]	86
Mean score[2]	13.67
Below Target	32.56%
on Target	44.19%
Above Target	23.26%
Total on Target and Above Target	**67.44%**

[1]Total number of assessments used to evaluate the current Learning Outcome.

[2]Value on a scale of 0 to 20.

4.4.2 Indirect Measures

Alumni surveys: Below, Table 5 provides a summary of the alumni survey results for the **BSc in Economics** during the 2022/2023 academic year. The scores, based on responses from **69** alumni, are reported on an A, B, C, F scale, as outlined in Section 3.5.2.

Table 5: Results of the alumni surveys for the **BSc in Economics**

	Outcome	Mean[1]	TTAT[2]	Score
I	Has broad knowledge of national and international economic context, including social, legal, historial and political issues	4.62	91.30	A
II	Is able to use quantitative and technical skills for analyzing economic issues	4.70	94.20	A
III	Understands the key theories and practices in core areas of economic science and acquire the ability to apply these to actual situations	4.67	91.30	A
IV	Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	5.10	92.75	A
V	Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	5.07	95.65	A
VI	Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations	4.46	81.08	B

[1] On a Likert scale of 1 to 6

[2] Total on Target and Above Target

Employers surveys: The results of the employer survey for the **BSc in Economics** in the 2022/2023 academic year are summarized in Table 6. Based on feedback from **10** employers, the scores are presented on an A, B, C, F scale, as detailed in Section 3.5.2.

Table 6: Results of the employer surveys for the **BSc in Economics**

	Outcome	Mean[1]	TTAT[2]	Score
I	Has broad knowledge of national and international economic context, including social, legal, historial and political issues	4.80	90	B
II	Is able to use quantitative and technical skills for analyzing economic issues	5.09	100	A
III	Understands the key theories and practices in core areas of economic science and acquire the ability to apply these to actual situations	5.00	100	A
IV	Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	5.55	100	A
V	Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	5.45	100	A

	Outcome	Mean[1]	TTAT[2]	Score
VI	Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations	5.00	100	A

[1] On a Likert scale of 1 to 6

[2] Total on Target and Above Target

4.4.3 Integrated assurance overview

The table below, Table 7, presents the integrated results for the program **BSc in Economics**, combining both direct and indirect measures of assessment. Data was triangulated as described in Section 3.5, ensuring a comprehensive evaluation of the learning outcomes.

Table 7: Integrated direct and indirect measures results for the **BSc in Economics**

	AY2122[1]	Reassessment	Regular	Employer	Alumni
I	[[NULL]]	[[character]]	[[NULL]]	[[character]]	[[character]]
II	[[character]]	[[NULL]]	[[character]]	[[character]]	[[character]]
III	[[character]]	[[NULL]]	[[character]]	[[character]]	[[character]]
IV	[[NULL]]	[[character]]	[[NULL]]	[[character]]	[[character]]
V	[[character]]	[[NULL]]	[[character]]	[[character]]	[[character]]
VI	[[character]]	[[NULL]]	[[character]]	[[character]]	[[character]]

[1] Academic year 2021/2022

By integrating the various dimensions, including the indirect survey-based data from the 2021/2022 academic year, along with the reassessments and regular assessments from 2022/2023, we gain a comprehensive overview of the learning outcomes for the **BSc in Economics**.

- **Learning Outcome I**: While the overall evaluations are favorable, the occurrence of two **B** scores across different direct and indirect data points suggests that this Learning Outcome warrants closer attention in future academic years to ensure continued high performance.
- **Learning Outcome II**: Although both the initial assessment and reassessment of this LO in the *Calculus II* course received a score of **C** for the academic years 2021/2022 and 2022/2023, all other data points—both direct and indirect—were rated as **A**. This suggests that the issue is likely isolated to the Group I question on the course's final exam.
- **Learning Outcome III**: For this LO, which was assessed for the first time this academic year, both data points from the indirect assessments received a score of **B**, while the direct assessment data point received a **C**. This pattern suggests a potential weakness in the program, for this Learning Outcome, that may require closer attention.
- **Learning Outcome IV**: This outcome was directly measured in the academic year 2021/2022, receiving a score of **B**. In the following year, it was assessed solely through indirect measures, both of which received a score of **A**. Overall, all assessments for this outcome are positive.
- **Learning Outcome V**: The results here are mixed, with indirect data showing a score of **A** while direct data yields a score of **C**. A clearer understanding of this learning outcome's status should emerge as more data points are collected in the upcoming academic years.
- **Learning Outcome VI**: Currently, we only have a single direct data point for this LO, derived from the *final exam* results of the *Global Economics I* course, which yielded a score of **F**, with 48.21% of the assessments falling below target. This learning outcome requires reassessment in the 2023/2024 academic year to gain a more comprehensive understanding and address any underlying issues.

4.5 Outcomes and recomendations

Based on the integrated results presented in Section 4.4.3, we have derived key insights that form the foundation of our ongoing evaluation and enhancement strategies.

- **Learning Outcome I**: Although the overall evaluations are positive, the recurrence of **B** scores in both direct and indirect assessments indicates that this LO should be monitored closely in the upcoming academic years. This LO is planned for a regular assessment in the upcoming 2023/2024 academic year.
- **Learning Outcome II**: The **C** scores observed in the *Calculus II* course over two consecutive academic years stand in contrast to the **A** ratings from other assessments. This discrepancy suggests that the issues may be isolated to specific components of the *Calculus II final exam*. It is recommended that the Academic Director collaborates with the lead course instructor to ensure that students are effectively developing the desired competencies. Given the recurrence of **C** assessments, we plan to reassess the same assessment moment in Calculus II during the 2023/2024 academic year, along with an additional assessment moment in another course, to gain a broader understanding of this Learning Outcome's performance.
- **Learning Outcome III**: This LO was assessed for the first time this academic year, with both indirect assessments receiving a score of **B** and the direct assessment scoring **C**, for *Advanced Microeconomics*. This pattern indicates a potential area of weakness within the program that warrants closer attention. To address this, we plan to reassess this LO in a different course during the next academic cycle. Additionally, the Academic Director should collaborate with the lead instructor of the *Advanced Microeconomics* course to identify and address any underlying factors contributing to the lower score.
- **Learning Outcome IV**: Positive results were observed for this LO, with a direct assessment score of **B** in 2021/2022 and A in both indirect assessments in the following year. For this LO is planned for a regular assessment in the upcoming 2023/2024 academic year.
- **Learning Outcome V**: Given that we had direct assessment with a score of **C**, in the course of *Statistics for Economics and Management*, this learning will be subject to a revaluation in the academic year of 2023/2024.
- **Learning Outcome VI**: The single direct assessment for this LO, resulting in an **F** from the *Global Economics I* final exam, with nearly half of the students falling below target, is a significant concern. Immediate reassessment is necessary in the 2023/2024 academic year, with a focus on identifying specific areas of improvement within this LO to ensure it aligns with the program's standards. The Academic Director should work closely with the lead instructor of the *Global Economics I* course to address any underlying issues contributing to the poor performance. Additionally, incorporating indirect measurements in the upcoming assessments will provide a more comprehensive view of the students' competencies and help identify broader trends that may be impacting this LO.

Overall, while the integrated analysis suggests a generally positive outlook, the points of concern identified in specific Learning Outcomes highlight the need for focused interventions and reassessments. These targeted efforts will be essential to maintaining the overall quality and effectiveness of the program, ensuring that all Learning Outcomes are fully met and aligned with the program objectives.

4.6 Outcomes and recomendations

When evaluating this PhD program, it is crucial to consider its unique characteristics: a small cohort size and future employers who are dispersed and difficult to reach for feedback. Consequently, when analyzing both current and future data, it is important to recognize that the results may exhibit greater variability, as any particularly high or low scores will have a significant impact on the averages. Additionally, there will always be constraints on the amount of indirect data we can gather. Taking into consideration that all assessed Learning Outcomes (LOs) received an **A** score, the program demonstrates strong performance. With these considerations in mind and based on the results presented in **?@sec-totalint33**, the planned actions for the 2023/2024 academic year are:

- **Learning Outcome I**: This outcome is set for evaluation as part of the routine assessments for the 2023/2024 academic year.
- **Learning Outcome IV**: This outcome will undergo its scheduled assessment as part of the regular evaluations for the 2023/2024 academic year.

5 Final recomendations and future developments

As a continuous improvement process, the **Assurance of Learning** (AoL) itself is subject to ongoing refinement. We are committed to continuously enhancing the AoL process, not only to support our programs and courses but also

to actively promote the development of the desired skills and competencies in our students. To achieve this, the AoL process will undergo regular reviews to identify areas for improvement and to better integrate quality assurance practices into the design and development of programs and courses. Our ultimate goal is to evolve the AoL to a level of maturity where it acts as a key enabler of Quality by Design, thereby enhancing course content, delivery and overall program quality.

With this in mind, and considering that the 2023/2024 academic year will mark only the third year of the AoL process, there is still significant room for improvement. Therefore, we plan to implement the following changes:

- **Standardization of Learning Outcomes Ordering**: Standardization of Learning Outcomes Ordering: As noted in **?@nte-LOO**, programs where the order of Learning Outcomes (LOs) is not consistent with the order outlined in Section 3.2 will be adjusted to ensure uniformity across programs. This may result in minor changes to the planned direct measures assessment, as the assessments for the academic year 2023/2024 will focus on LOs I and IV to maximize consistency. We aim, through this change, to establish a clearly recognizable and consistent structure that remains top of mind for both faculty and academic directors. This approach will help ensure that the desired learning outcomes are continuously represented in both course content and assessment moments.

- **Inclusion of the Executive Masters**: In the academic year 2022/2023, Nova SBE launched five new Executive Masters programs. These programs were developed as post-experience courses aimed at working professionals who wish to deepen their knowledge in specific areas of Nova SBE's expertise. Of these five programs, three are highly executive versions of courses that already exist in the pre-experience format. In the academic year 2023/2024, all Executive Masters will undergo the assurance of learning process. For those that have a corresponding pre-experience master, the Learning Outcomes (LOs) already defined for the pre-experience master will be used. The Executive Masters will be subject to indirect measurement data gathering; however, given that many participants are tenured professionals, not currently active in the labor market, we anticipate that recruiter data will be limited.

- **Extension of Indirect Data Gathering Initiatives**: The academic year 2022/2023 marked the first time we implemented data gathering initiatives for indirect measures to support the Assurance of Learning process. However, not all programs were included in this initial effort. In 2023/2024, we aim to expand these initiatives to cover all programs. We do, however, anticipate challenges, particularly in gathering employer survey data for the Executive Masters and PhD programs, as discussed in Section 3.5.2. These challenges arise because the employers of alumni from these programs are dispersed, and the alumni themselves enter the job market at different times and at varying paces.

- **Learning Outcome Statements Aligned with Bloom's Taxonomy**: Some of the current Learning Outcome (LO) statements are not fully consistent with the principles of Bloom's Taxonomy. Therefore, in the 2023/2024 academic year, these LO statements will be reviewed to ensure they are fully aligned with Bloom's framework. Care will be taken to preserve the original intent and meaning of each statement, ensuring that they continue to reflect the same skills and competencies as before. With this revision, we aim to enhance the clarity and effectiveness of our learning outcomes, providing a more structured approach to assessing and developing students' knowledge, skills, and abilities.

- **Enhancing Coordination with Academic Directors**: The academic year 2022/2023 marked the second year of implementing the Assurance of Learning (AoL) process. With the inclusion of indirect data points and two years' worth of direct data, we now have comprehensive coverage of all learning outcomes. This expanded dataset provides a clearer understanding of how learning outcomes are represented across our programs. In the coming year, we aim to strengthen our collaboration with academic directors, ensuring that the AoL process becomes a valuable tool for guiding the management, development, and adjustment of course content and curricula.

- **Review of the Learning Outcomes for the MSc in Impact Entrepreneurship & Innovation**: The MSc in Impact Entrepreneurship & Innovation underwent a significant reframing during the academic year 2023/2024. Based on student feedback and the increased demand for certain elective courses and course projects, it became apparent that greater emphasis was needed on the Innovation dimension of the program. As a result, course content has been, and continues to be, adapted to reflect this shift. At the request of the current academic director, the LO will also be reviewed to align with these changes.

As we move forward, our commitment to refining the Assurance of Learning (AoL) process remains steadfast. The initiatives outlined for the 2023/2024 academic year reflect our dedication to enhancing program quality, fostering academic excellence, and aligning our educational offerings with evolving student and market needs. By implementing these changes, we aim to create a robust framework that not only upholds the integrity of our learning outcomes

but also supports continuous improvement in teaching and learning. Our goal is to cultivate an academic environment where the AoL process is seamlessly integrated into the fabric of our institution, guiding program development and ensuring that our graduates are equipped with the skills and competencies required to excel in their professional journeys. With each step, we strive to make our programs more responsive, inclusive, and effective, ultimately contributing to the success of our students and the broader academic community.

Appendices

Appendix 1.A

Table 8: Learning Outcomes and Program Objectives for **BSc in Economics**

	I. Has broad knowledge of national and international economic context, including social, legal, historial and political issues	II. Is able to use quantitative and technical skills for analyzing economic issues	III. Understands the key theories and practices in core areas of economic science and acquire the ability to apply these to actual situations	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. A solid knowledge and ability to understand the principles of Economics and their application.		X	X		X	X
2. Personal skills such as communication skills, ability to work individually and in teams, use of computing techniques including research, processing and data presentation.				X		
3. Analytical skills and critical thinking capacities allowing them to build and communicate their own argument.		X		X		X
4. A general education in Management and other related disciplines in the areas of Law, Quantitative Methods and Social Sciences, so that they can analyze and develop solutions and emit judgments, taking into account a variety of scientific, social and ethical aspects.	X				X	X
5. An education which enables them to communicate information, ideas, problems and solutions to diversified audiences.			X	X		

	I. Has broad knowledge of national and international economic context, including social, legal, historial and political issues	II. Is able to use quantitative and technical skills for analyzing economic issues	III. Understands the key theories and practices in core areas of economic science and acquire the ability to apply these to actual situations	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
6. Personal skills that allow for a life-long learning experience in a fundamentally autonomous manner.	X				X	

Table 9: Mapping of Course Proficiency Levels to Learning Outcomes for **BSc in Economics**

Course	Code	Semester	I	II	III	IV	V	VI
Principles of Microeconomics	1100	S1 | S2	Developing	Developing				Developing
Principles of Macroeconomics	1101	S1 | S2	Developing	Developing				Developing
Microeconomics	1102	S1 | S2	Proficient	Developing				Proficient
Macroeconomics	1103	S1 | S2	Proficient	Developing				Proficient
Seminar in European Economics	1104	S1 | S2	Proficient	Proficient	Proficient	Proficient	Proficient	Proficient
Advanced Microeconomics	1111	S1 | S2	Expert	Expert	Expert			Expert
Industrial Organization	1112	S1 | S2			Proficient			
Global Economics I	1113	S1 | S2	Developing	Developing			Developing	Developing
Global Economics II	1114	S1 | S2	Proficient	Proficient			Developing	Proficient
Principles of Management	1200	S1 | S2			Proficient	Proficient		
Financial Accounting	1201	S1 | S2		Developing	Developing			
Finance	1203	S1 | S2		Developing	Developing			
Calculus I	1301	S1 | S2		Developing			Developing	
Calculus II	1302	S1 | S2		Proficient			Developing	
Linear Algebra	1303	S1 | S2		Proficient			Developing	
Data Analysis and Probability	1304	S1 | S2		Expert	Proficient		Proficient	
Statistics for Economics and Management	1305	S1 | S2	Proficient	Proficient	Expert		Proficient	
Econometrics	1306	S1 | S2	Expert	Expert	Expert		Proficient	
Law in Economics and Management	1405	S1 | S2	Proficient	Proficient	Proficient			Proficient
Introduction to Modern and Contemporary History	1409	S1 | S2	Developing		Developing		Proficient	Proficient
Communication, Leadership and Ethics	1458	S1 | S2	Proficient			Expert		Expert
Managing Impactful Projects	1459	S1 | S2			Expert	Expert	Proficient	Expert

Table 10: Learning Outcomes and Program Objectives for **BSc in Management**

	I. Has broad knowledge of management knowledge areas, including finance, strategy, organizational behavior and marketing	II. Is able to apply analytical skills to real world business problems	III. Has a strategic understanding of the business environment	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. Students will develop analytical, critical thinking and problem solving skills.	X		X		X	X
2. Students will develop effective interpersonal and communication skills, including the ability to pursue productive teamwork.				X		
3. Students will understand the key theories and practices in core management areas and apply them in real business situations.	X	X			X	X
4. Students will be able to use quantitative and technical skills in business situations.	X	X	X			
5. Students will acquire a broad knowledge of the national and global business environment, from a variety of perspectives (managerial, economic, legal, cultural, and ethical).			X	X		X

Table 11: Mapping of Course Proficiency Levels to Learning Outcomes for **BSc in Management**

Course	Code	Semester	I	II	III	IV	V	VI
Principles of Microeconomics	1100	S1 | S2		Developing	Developing			Developing
Principles of Macroeconomics	1101	S1 | S2		Developing	Developing			Developing
Microeconomics	1102	S1 | S2		Developing	Proficient			Proficient
Macroeconomics	1103	S1 | S2		Developing	Proficient			Proficient
Principles of Management	1200	S1 | S2	Developing		Proficient			Developing
Financial Accounting	1201	S1 | S2	Developing	Developing				
Management Accounting	1202	S1 | S2	Proficient	Developing	Developing			
Finance	1203	S1 | S2	Proficient	Developing	Proficient			
Marketing	1204	S1 | S2	Proficient		Proficient	Proficient		
Organizational Behavior	1206	S1 | S2	Proficient		Proficient			Proficient
Strategy	1207	S1 | S2	Proficient		Expert			
Global Business Environment	1212	S1 | S2	Proficient		Expert			Proficient
Business Seminar	1213	S1 | S2			Proficient	Proficient		Proficient
Calculus I	1301	S1 | S2		Developing			Developing	
Calculus II	1302	S1 | S2		Proficient			Developing	
Linear Algebra	1303	S1 | S2		Proficient			Developing	
Data Analysis and Probability	1304	S1 | S2		Expert			Proficient	
Statistics for Economics and Management	1305	S1 | S2		Expert	Expert		Proficient	
Law in Economics and Management	1405	S1 | S2	Proficient	Proficient	Proficient			
Introduction to Modern and Contemporary History	1409	S1 | S2			Developing		Proficient	Proficient
Communication, Leadership and Ethics	1458	S1 | S2	Proficient			Expert		Expert
Managing Impactful Projects	1459	S1 | S2			Expert	Expert		Expert

Appendix 3.A

Table 12: Learning Outcomes and Program Objectives for **MSc in Economics**

	I. Has knowledge of national and international economic context	II. Is able to use quantitative and technical skills for analyzing economic issues	III. Understands the key theories and practices in core areas of economic science and is able to them to actual situations	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. Possess knowledge and capacity for understanding at a level that builds upon and enriches that acquired at Undergraduate level, show evidence that they have applied their developed knowledge in an original format, frequently in the context of a research project.	X	X	X			X
2 .Ability to apply their knowledge and capacity to comprehend and resolve problems in new and unfamiliar situations, in broader contexts, beyond those directly related to their area of study.		X		X	X	X
3. Capacity to integrate knowledge, deal with complex questions, develop solutions or emit judgments in situations where there is limited or incomplete information. An awareness of the ethical and social implications and responsibilities that result from these solutions and judgments or that condition them.	X		X		X	X
4. Communicate conclusions, and the knowledge and reasoning underlying them in a clear and unambiguous fashion.		X		X		

	I. Has knowledge of national and international economic context	II. Is able to use quantitative and technical skills for analyzing economic issues	III. Understands the key theories and practices in core areas of economic science and is able to them to actual situations	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
5. Competencies that allow for a life-long learning experience in a fundamentally self-motivated and autonomous manner.				X	X	

Appendix 3.B

Table 13: Mapping of Course Proficiency Levels to Learning Outcomes for **MSc in Economics**

Course	Code	Semester	I	II	III	IV	V	VI
Macroeconomic Analysis	2174	S1	Expert	Expert	Expert		Expert	Expert
Microeconomic Analysis	2188	S1	Expert	Expert	Expert	Expert	Expert	
Econometrics	2175	S1		Expert	Expert		Expert	
Macroeconometrics	2165	S2	Expert	Expert	Proficient	Proficient	Expert	Proficient
Microeconometrics	2168	S2	Expert	Expert	Proficient	Proficient	Expert	
Mastering Your Career	2578	A				Expert	Expert	

Appendix 4.A

Table 14: Learning Outcomes and Program Objectives for **MSc in Management**

	I. Has a deep knowledge of management knowledge areas, including finance, strategy, organizational behavior and marketing	II. Has a strategic understanding of the business environment	III. Is able to apply analytical skills to real world business problems	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. Possess knowledge and capacity for understanding at a level that builds upon and enriches that acquired at Undergraduate level.	X	X				X
2. Show evidence that they have applied their developed knowledge in an original format, frequently in the context of a research project.	X				X	X
3. Ability to apply their knowledge and capacity to comprehend and resolve problems in new and unfamiliar situations, in broader contexts, beyond those directly related to their area of study.	X	X			X	X
4. Capacity to integrate knowledge, deal with complex questions, develop solutions or emit judgments in situations where there is limited or incomplete information. An awareness of the ethical and social implications and responsibilities that result from these solutions and judgments or that condition them.	X	X				X
5. Communicate conclusions, and the knowledge and reasoning underlying them in a clear and unambiguous fashion.			X	X		

	I. Has a deep knowledge of management knowledge areas, including finance, strategy, organizational behavior and marketing	II. Has a strategic understanding of the business environment	III. Is able to apply analytical skills to real world business problems	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
6. Competencies that allow for a life-long learning experience in a fundamentally selfmotivated and autonomous manner.	X				X	

Appendix 4.B

Table 15: Mapping of Course Proficiency Levels to Learning Outcomes for **MSc in Management**

Course	Code	Semester	I	II	III	IV	V	VI
Advanced Topics in Human Resources Management	2463	T2	Expert			Proficient	Proficient	Expert
Financial Management	2414	S1	Proficient	Proficient	Proficient	Proficient	Proficient	
Human Resources Management	2336	T1 | T2	Proficient			Proficient	Proficient	Expert
Marketing Management	2431	S1	Proficient	Proficient	Proficient	Proficient	Proficient	
Statistics II	2434	T1 | T3			Proficient		Proficient	
Statistics III	2435	T1 |T3			Proficient		Proficient	
Strategy	2584	S1 | S2	Proficient	Proficient	Proficient	Proficient	Proficient	
Mastering Your Career	2578	A				Expert	Expert	
Advanced Strategy	2459	S1	Expert	Expert	Expert	Proficient	Proficient	
Advanced Marketing Management	2430	S1	Expert	Expert	Expert	Proficient	Proficient	
Advanced Financial Management	2581	S1	Expert	Expert	Expert	Proficient	Proficient	

Appendix 5.A

Table 16: Learning Outcomes and Program Objectives for **MSc in International Management**

	I. Has a deep knowledge of management knowledge areas, including finance, strategy, organizational behavior and marketing	II. Has a strategic understanding of the business environment	III. Is able to apply analytical skills to real world business problems	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. Possess knowledge and capacity for understanding at a level that builds upon and enriches that acquired at Undergraduate level.	X	X				X
2. Show evidence that they have applied their developed knowledge in an original format, frequently in the context of a research project.	X				X	X
3. Ability to apply their knowledge and capacity to comprehend and resolve problems in new and unfamiliar situations, in broader contexts, beyond those directly related to their area of study.	X	X			X	X
4. Capacity to integrate knowledge, deal with complex questions, develop solutions or emit judgments in situations where there is limited or incomplete information. An awareness of the ethical and social implications and responsibilities that result from these solutions and judgments or that condition them.	X	X				X
5. Communicate conclusions, and the knowledge and reasoning underlying them in a clear and unambiguous fashion.			X	X		

	I. Has a deep knowledge of management knowledge areas, including finance, strategy, organizational behavior and marketing	II. Has a strategic understanding of the business environment	III. Is able to apply analytical skills to real world business problems	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
6. Competencies that allow for a life-long learning experience in a fundamentally selfmotivated and autonomous manner.	X				X	

Appendix 5.B

Table 17: Mapping of Course Proficiency Levels to Learning Outcomes for **MSc in International Management**

Course	Code	Semester	I	II	III	IV	V	VI
Advanced Topics in Human Resources Management	2463	T2	Expert			Proficient	Proficient	Expert
Financial Management	2414	S1	Proficient	Proficient	Proficient	Proficient	Proficient	
Human Resources Management	2336	T1 | T2	Proficient			Proficient	Proficient	Expert
Marketing Management	2431	S1	Proficient	Proficient	Proficient	Proficient	Proficient	
Statistics II	2434	T1 | T3			Proficient		Proficient	
Statistics III	2435	T1 |T3			Proficient		Proficient	
Strategy	2584	S1 | S2	Proficient	Proficient	Proficient	Proficient	Proficient	
Mastering Your Career	2578	A				Expert	Expert	
Advanced Strategy	2459	S1	Expert	Expert	Expert	Proficient	Proficient	
Advanced Marketing Management	2430	S1	Expert	Expert	Expert	Proficient	Proficient	
Advanced Financial Management	2581	S1	Expert	Expert	Expert	Proficient	Proficient	

Appendix 6.A

Table 18: Learning Outcomes and Program Objectives for **MSc in Finance**

	I. Is able to apply finance concepts and tools to real world problems	II. Has a strategic understanding of the business environment	III. Is able to apply analytical skills to real world business problems	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. Students should acquire critical thinking skills and the ability to pursue individual and autonomous work		X			X	
2. Students should develop interpersonal, teamwork and communication skills. In particular, they should be able to interact and communicate with people with different backgrounds and areas of expertise.			X	X	X	
3. Students should acquire a solid theoretical background in Finance and the capacity to apply this knowledge to approach new issues and to solve problems	X	X	X			X
4. Students will learn how to use sophisticated quantitative tools and advanced technologies in the analysis and resolution of financial problems, in complex environments and under incomplete information	X		X		X	X

Table 19: Mapping of Course Proficiency Levels to Learning Outcomes for **MSc in Finance**

Course	Code	Semester	I	II	III	IV	V	VI
Corporate Finance	2253	S1	Proficient	Expert	Expert	Developing	Expert	Expert
Empirical Methods for Finance	2269	T1	Proficient	Developing	Proficient	Proficient	Expert	
Financial Modeling	2270	T1	Proficient	Developing	Proficient	Proficient	Proficient	
Investments	2229	S1	Expert	Proficient	Expert	Proficient	Expert	Expert
Mastering Your Career	2578	A				Expert	Expert	

Appendix 7.A

Table 20: Learning Outcomes and Program Objectives for **MSc in International Finance**

	I. Is able to apply finance concepts and tools to real world problems	II. Has a strategic understanding of the business environment	III. Is able to apply analytical skills to real world business problems	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. Students should acquire critical thinking skills and the ability to pursue individual and autonomous work		X			X	
2. Students should develop interpersonal, teamwork and communication skills. In particular, they should be able to interact and communicate with people with different backgrounds and areas of expertise.			X	X	X	
3. Students should acquire a solid theoretical background in Finance and the capacity to apply this knowledge to approach new issues and to solve problems	X	X	X			X
4. Students will learn how to use sophisticated quantitative tools and advanced technologies in the analysis and resolution of financial problems, in complex environments and under incomplete information	X		X		X	X

Appendix 7.B

Table 21: Mapping of Course Proficiency Levels to Learning Outcomes for **MSc in International Finance**

Course	Code	Semester	I	II	III	IV	V	VI
Corporate Finance	2253	S1	Proficient	Expert	Expert	Developing	Expert	Expert
Empirical Methods for Finance	2269	T1	Proficient	Developing	Proficient	Proficient	Expert	
Financial Modeling	2270	T1	Proficient	Developing	Proficient	Proficient	Proficient	
Investments	2229	S1	Expert	Proficient	Expert	Proficient	Expert	Expert
Mastering Your Career	2578	A				Expert	Expert	

Appendix 8.A

Table 22: Learning Outcomes and Program Objectives for **MSc Business Analytics**

	I. Leads complex projects in data driven organizations, leveraging data in an ethical way, for decision making processes	II. Has a strategic understanding of the business environment	III. Deploys technical tools and frameworks, for manipulation, curation, analysis and visualization of data, transforming hard-data in to decision making information	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. To understand how to design and manage data-driven organizations (organizational)	X		X		X	X
2. To learn how to lead projects and interdisciplinary teams to solve complex problems and take and implement complex decisions leveraging data (team, leadership);	X	X				X
3. To understand/deploy the available technical tools for curation and manipulation of data and the prospects for their development (technical);			X			
4. To learn how to transform hard data into storytelling and frameworks that improve human decisions and inspire commitment (communication, leadership and implementation);		X	X			X
5. To be aware of the limitations of data-driven decisions and the role of human cognitive systems and the ethical and legal constraints (critical thinking).	X			X	X	X

Appendix 8.B

Table 23: Mapping of Course Proficiency Levels to Learning Outcomes for **MSc Business Analytics**

Course	Code	Semester	I	II	III	IV	V	VI
Modeling Business Decisions	2346	T2	Expert	Expert	Expert		Proficient	
Machine Learning	2487	S2	Expert		Expert		Proficient	
Data Curation	2489	T1	Proficient	Proficient	Proficient			
Data Visualization for Business Analytics	2609	T2	Proficient		Expert	Proficient		
Advanced Data Analysis	2597	S1	Proficient	Expert	Expert		Proficient	
Data Ecosystems and Governance in Organizations	2606	T1	Developing	Expert			Proficient	Expert
Digital Markets	2607	T2		Proficient		Proficient	Proficient	Proficient
Mastering your Career	2578	A				Expert	Expert	

Appendix 9.A

Table 24: Learning Outcomes and Program Objectives for **MSc Impact Entrepreneurship & Innovation**

	I. Identifies a business opportunities, develops a business plan to take advantage of it in an ethical way, identifying relevant KPIs that will guide it's development	II. Has a strategic understanding of the business environment	III. Learns from failure in entrepreneurial projects, is conscious of the interactive nature of continuous improvement process in entrepreneurship	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. to teach students how to identify impactful business ideas;	X	X		X	X	X
2. to enable students to develop new business models that respond to market needs and challenges	X	X	X	X	X	X
3. to promote experimental and experiential learning in the implementation of new impact entrepreneurship projects, based on an integrated process of analysis and decision making.			X		X	

Appendix 9.B

Table 25: Mapping of Course Proficiency Levels to Learning Outcomes for **MSc Impact Entrepreneurship & Innovation**

Course	Code	Semester	I	II	III	IV	V	VI
Applied Research Methods	2624	T3	Proficient				Expert	
Data Science and Innovation for Impact	2625	S2	Proficient	Proficient		Expert	Expert	Expert
Entrepreneurial Journey	2626	S1	Proficient		Proficient	Proficient	Proficient	Proficient
Entrepreneurial Project - Start up Mastery	2627	S2	Expert	Proficient	Expert	Expert		
Entrepreneurship with Impact	2628	S1	Proficient	Proficient		Expert		Expert
Metrics that Matter	2629	T2	Expert				Expert	Expert
New Venture Management	2631	T4	Expert	Expert	Expert			
Opportunity Identification	2632	T1	Developing	Developing	Proficient		Expert	
Mastering your Career	2578	A				Expert	Expert	

Appendix 10.A

Table 26: Learning Outcomes and Program Objectives for **MSc International Development and Public Policy**

	I. Understands the key theories and practices in core areas of development and public policy	II. Has a broad understanding of the institutional framework, their constraints and how they were shaped by the various economic theories	III. Is able to research, collect and analyze information, in order to develop a critical viewpoint and make decisions	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. understand the fundamentals of Inferential Statistics and how sample information can be used to help in the decision process.			X	X	X	
2. gain a broad knowledge of the development of international institutions after WWII and their adaptation to the end of the Cold War, along with the circumstances and constraints influencing them.		X			X	X
3. understand the theories that explain economic development, especially neo-realism and neo-liberalism.	X	X				X
4. To understand similarities and differences in the development of international institutions and the post WWII utilization of international institutions to spread of liberalism.		X		X		
5. To develop students' ability to research, present and sustain a critical viewpoint.	X		X		X	X

Appendix 10.B

Table 27: Mapping of Course Proficiency Levels to Learning Outcomes for **MSc International Development and Public Policy**

Course	Code	Semester	I	II	III	IV	V	VI
Developing Economics I	2738	T2	Expert	Proficient	Developing	Proficient	Proficient	Proficient
Developing Economics II	2739	T3	Expert	Expert	Developing	Proficient	Expert	Expert
Management	2750	T1		Developing			Proficient	Proficient
Markets Incentives and Behavior	2741	T1	Proficient				Proficient	Developing
Policy Analysis Exercise	2742	A	Expert	Proficient	Proficient	Proficient	Expert	Expert
Policy Appraisal	2743	T2	Proficient		Expert	Proficient	Proficient	Developing
Public Policy I	2746	T2	Expert	Developing		Proficient	Expert	Proficient
Public Policy II	2747	T3	Expert	Expert		Proficient	Expert	Expert
Statistics for Policy Action	2748	T1			Expert		Developing	
International Relations and Organizations	2740	T1		Expert	Proficient	Proficient	Proficient	Proficient
Policy Evaluation for Public Policy	2744	T3	Expert	Proficient	Proficient		Expert	
Mastering your Career	2578	A				Expert	Expert	

Appendix 11.A

Table 28: Learning Outcomes and Program Objectives for **PhD Economics and Finance**

	I. Is able to apply research concepts and tools	II. Is intellectually independent, and is able to explore key questions in the field of study	III. Is able autonomously structure and develop meaningful and original research projects	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. training highly qualified independent researchers for positions in international academia and research institutions, as well as for top positions in governmental organizations, multilateral organizations, and economic/policy think tanks.		X		X	X	X
2. Endowing the candidates with the state-of-the-art of both theoretical and empirical tools that allow them do advance the frontier of research and provide evidence-based policy recommendations	X		X	X		
3. Doctoral graduates are up to date with the most recent advances in their field of knowledge, get exposed to research from the very early stages and pursue an internationalization track.		X	X		X	X

Appendix 11.B

Table 29: Mapping of Course Proficiency Levels to Learning Outcomes for **PhD Economics and Finance**

Course	Code	Semester	I	II	III	IV	V	VI
Macroeconomics I	6103	S1	Expert	Expert	Expert	Expert	Expert	
Macroeconomics II	6104	S2	Expert	Expert	Expert	Expert	Expert	
Mathematics	6301	S1	Proficient	Proficient	Proficient	Proficient	Expert	
Microeconomics I	6101	S1	Expert	Expert	Expert	Expert	Expert	
Microeconomics II	6102	T3	Expert	Expert	Expert	Expert	Expert	
Research Methods	6302	S2	Expert		Expert	Expert	Expert	
Advanced Econometrics	6303	S1	Proficient	Proficient				
Econometrics I	6306	S1	Expert	Expert	Expert	Expert	Expert	
Econometrics II	6307	S2	Expert	Expert	Expert	Expert	Expert	
Advanced Topics in Economics	6106	T2|T3|T4						Expert

Appendix 12.A

Table 30: Learning Outcomes and Program Objectives for **PhD Management**

	I. Is able to apply research concepts and tools	II. Is intellectually independent, and is able to explore key questions in the field of management	III. Is able autonomously structure and develop meaningful and original research projects	IV. Has effective interpersonal and communication skills, including the ability to pursue productive teamwork	V. Has analytical, critical thinking and problem solving skills that allow for a life-long learning experience in an autonomous manner	VI. Has a holistic understanding of sustainable business and economic models, applying ethical, social, and environmental values to exert a positive and transformative influence within projects and organizations
1. Graduates should be able to critically apply theories and methodologies in order to identify and explore key questions, issues, and problems in management and develop meaningful and original research for the discipline and/or context in which it was developed	X	X	X			X
2. should become intellectually independent and be able to autonomously develop their own projects within their specific research stream. This should enable them to submit applications, as independent researchers, to national (e.g., FCT) and international (e.g., EU) funding agencies		X	X	X	X	X
3. should demonstrate mastery of several parallel skills, namely problem solving, information management, collaboration and teamwork, oral and written communication, and other skills that are transferable for a career in higher education and other areas. These learning outcomes are grounded in a strong emphasis on ethical standards in research and management practice.	X			X	X	

Appendix 12.B

Table 31: Mapping of Course Proficiency Levels to Learning Outcomes for **PhD Management**

Course	Code	Semester	I	II	III	IV	V	VI
Organizational Theory	6201	S1	Expert	Expert		Expert	Expert	Expert
Statistics I	6304	T3	Proficient	Proficient			Proficient	
Statistics II	6305	T4	Expert	Expert		Proficient	Expert	
Exemplary Research	6202	T2	Expert	Proficient	Proficient		Expert	
Hot Topics in Exemplary Research	6203	T4	Expert	Expert	Expert	Expert		Expert
Qualitative Methods	6206	T4		Expert	Expert		Expert	Proficient
Hot Topics in Qualitative Methods	6204	T4		Expert	Expert	Proficient		Proficient
Social Behavior	6207	T1	Proficient					Expert
Hot Topics in Quantitative Methods	6205	T4		Expert	Expert	Expert		Proficient
Design of PhD project	6117		Proficient		Expert			Proficient
Discussion of the PhD project	6208					Expert	Expert	
Research Seminars	6209					Expert		