Consistency between **The Aims of the Bachelor's Degree according to Study Guide VS Learning Outcomes of the Bachelor's Degree according to ASIIN's Subject-Specific Criteria**

Learning Goals and Objectives

1. *Learning Goal:* Mathematics majors will develop computational skills in first-year calculus needed for more advanced calculus-based courses.

Objectives: Students will:

a. evaluate derivatives for complexly constructed elementary functions;
b. evaluate definite and indefinite integrals; and
c. Evaluate limits using algebraic, geometric, analytic techniques.

2. *Learning Goal:* Mathematics majors will learn and retain basic knowledge in the core branches of mathematics.

Objectives: Students will, during their senior year:

a. demonstrate proficiency in calculus;
b. demonstrate proficiency in linear algebra; and
c. Demonstrate proficiency in algebra.

3. *Learning Goal:* Mathematics majors will be able to learn and explain mathematics on their own.

Objectives: Students will:

a. read a mathematics journal article and explain it, orally or in writing, to an audience of math majors and
b. After graduation, be able to master new mathematics necessary for their employment.

4. *Learning Goal:* Mathematics majors will be able to read and construct rigorous proofs.

Objectives: Students will:

a. construct clearly written proofs which use correct terminology and cite previous theorems;
b. construct proofs using mathematical induction;
c. construct proofs by contradiction; and
d. judge whether a proof is sound, and identify errors in a faulty proof.

5. *Learning Goal:* Mathematics majors will be able to obtain employment in their area of mathematical interest or gain admittance to a graduate program in mathematics.

Objectives: Students who:

a. seek admission to graduate schools in mathematics will succeed in gaining admission, and perform adequately in these programs;
b. seek entry-level employment in math-related fields will obtain it;
c. specialize in actuarial science will obtain entry-level work as actuaries, if they seek it;
d. specialize in secondary education will demonstrate proficiency in mathematics needed to obtain Initial Certification in KSA; or
e. Seek jobs in secondary or elementary education will obtain jobs at the appropriate grade level.

ASIIN Requirements for Bachelor's Degree of Mathematics Program

The diverse professional opportunities of graduates of degree programs in mathematics are based on a sound mathematical education and thorough training, encompassing broad basic knowledge as well as scientific work methods. The Bachelor's degree program facilitates regular completion of a degree with an early career start on the one hand, while on the other hand permitting faster progress of students aiming to do an additional non-mathematical degree (e.g. for consulting, marketing, business, finance, patents etc.).

The **following learning outcomes** (knowledge, skills or competences)1 are typical of a

Bachelor's degree in mathematics:

Specialist learning outcomes

Graduates

(a). have sound mathematical knowledge. They have a profound overview of the contents of fundamental mathematical disciplines and are able to identify their correlations.
(b). are able to recognize mathematics-related problems, assess their solvability and solve them within a specified time frame.
(c). have a basic ability to work in a scientific way. They are in particular able to formulate mathematical hypotheses and have an understanding of how such hypotheses can be verified or falsified using mathematical methods.

(d). Can flexibly apply mathematical methods of fundamental component areas of mathematics and are able to transfer the findings obtained to other component areas or applications.
(e). have abstraction ability and are able to recognize analogies and basic patterns.
(f). are able to think in a conceptual, analytical and logical manner.
(g). have an extensive comprehension of the significance of mathematical modeling. Are able to create mathematical models for mathematical problems as well as for problems.
(h). can use basic methods of computer-aided simulation, mathematical software and programming to solve mathematical problems
(i). are in a position to solve more extensive mathematical problems (generally to be proven within the framework of a Bachelor's thesis)

Social learning outcomes

Graduates can

(j). Classify, recognize, formulate and solve mathematics-related problems.
(k). Use electronic media competently.
(l). Implement lifelong learning strategies. A prerequisite for this is that the students are persevering and that they have developed persistence.
(m). can recognize, formulate, classify and solve problems in a mathematical context
(n). can communicate, possibly also in a foreign language, and contribute their work effectively in teams

Consistency between **The Aims of the Bachelor's Degree according to Study Guide VS Learning Outcomes of the Bachelor's Degree according to ASIIN's Subject-Specific Criteria**

Learning Outcomes of the **Bachelor's** Degree according to ASIIN's Subject-Specific Criteria															
The Aims of the Bachelor's Degree according to Study Guide		**Specialist learning outcomes**									**Social learning outcomes**				
		a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**	**m**	**n**
1	**G1**	x													
	a	x													
	b	x													
	c														
2	**G2**	x	x		x										
	a		x												
	b		x												
	c			x											
3	**G3**		x	x		x	x								
	a			x	x					x	x	x			
	b		x	x	x			x	x						
4	**G4**					x	x	x		x		x	x		
	a			x		x	x			x			x		
	b					x		x	x		x			x	
	c						x								x
	d						x								
5	**G5**								x				x	x	x
	a												x		
	b													x	
	c														
	d														x
	e														