

ANNEX 1

Scoring rubric designed considering the provided competency model and ranked by adapting the Miller pyramid of assessment¹ to the case of a mathematical practice situation. Please note that Miller index cannot be applied to the emotional dimension. Note also that an additional “don’t know” level has been included to provide a full picture of the performance of each student.

Dimension	Item	Ranking				
		(1) Don't know	(2) Know	(3) Explains	(4) Demonstrates	(5) Does
Cognitive	Language	Do not use appropriate mathematic language	Knows technical language when used	Knows and explains technical language	Knows, explains and uses technical language	
	Modelling	Do not know how to make a math model	Know how to translate a specific situation to a math model	Knows and explains how to translate a situation to a math model	Knows, explains and design mathematical models.	Knows, explains, design and apply mathematical models.
	Thinking and reasoning	Do not identify the variables to be discussed	Identifies variables and the aim of a problem	(...) and explain to the peers	(...) and applies to solve the problem	(...) and validates the result
Procedural	Use of tools	Do not relate provided tools with the problem	Relates provided tools with the problem	(...) and explain its use to the peers	(...) and applies to solve the problem	(...) and successfully use the tool
	Strategy development	Do not manage or try to design a strategy	Identifies a strategy to be applied to the problem	(...) and explain to the peers	(...) and discuss the validity of a strategy	(...) and validates the strategy by applying to a problem
Emotional	Productive disposition	Do not participate on the experience	Intermittent participation on the experience	Actively participates on the experience	(...) and motivate the others to participate	

¹ Miller G.E. *The assessment of Clinical Skills/Competence/Performance*; Acad. Med. 1990; 65(9), 63-67

ANNEX 2

Rubric designed to assess the didactic knowledge of the involved student-teachers. Note that this rubric was combined with the annex 1 rubric to provide a wide view of the didactic-mathematical knowledge of the involved student teachers.

Dimension	Item	Ranking				
		(1) Don't know	(2) Know	(3) Explains	(4) Demonstrates	(5) Does
Didactic	Classroom management	Knows no methodologies or strategies to manage conflicts	Theoretical know of some strategies to manage conflicts.		Knows and successfully applies strategies to solve conflicts.	
	Identifying and managing difficulties	Does not know conventional difficulties that student faces when learning about a specific topic	Knows (at a theoretical level) conventional difficulties that student faces	(...) and explain to the instructor	(...) and identifies such difficulties in a practical situation	(...) and provides a way to manage such difficulties
	Connectivity	Fails to connect mathematic knowledge with other fields	Knows real applications of the mathematic knowledge used (others than the presented on the situation-problem)		(...) and connects the learning process with other non-mathematic phenomena	
	Context fitting	Fails to re-contextualize knowledge	Knows what and how the student has to learn from a situation-problem	(...) and boosts the "discovering and learning" stage of the student	(...) and closes the cycle by de-contextualizing knowledge	

ANNEX 3

Experimental data obtained with the rubrics of annex 1 (1=don't know, 5=does).

		Competences						
		Cognitive			Procedural		Emotional	
		Language	Modelling	Thinking	Tools	Strategy	Disposition	
E.P.	G01	ABN01	2	2	3	3	2	3
		ABN02	3	3	4	4	3	4
		ABN03	3	3	3	3	3	4
		ABN04	3	3	4	4	4	4
	G02	ABN05	3	4	4	4	4	4
		ABN06	4	5	4	4	3	4
		ABN07	3	2	2	4	3	4
		ABN08	4	4	3	4	4	4
		ABN09	4	3	2	4	2	4
	G03	ABN10	4	4	3	3	4	4
		ABN11	2	3	3	4	3	3
		ABN12	2	3	3	4	3	3
		ABN13	3	3	3	3	3	3
		ABN14	4	4	3	5	4	4
	G04	ABN15	4	5	4	5	5	4
		ABN16	3	4	3	3	3	3
		ABN17	4	4	4	5	3	4
		ABN18	4	4	3	4	4	4
		ABN19	4	4	4	4	5	4
	G05	ABN20	3	3	3	4	3	3
		ABN21	2	3	3	4	2	3
		ABN22	2	2	2	4	2	2
		ABN23	4	3	3	3	3	4
E.P.	G06	CBC01	4	3	2	4	3	3
		CBC02	3	2	3	4	3	3
		CBC03	3	3	4	3	4	4
		CBC04	3	3	2	3	3	3
		CBC05	2	3	2	2	2	2
	G06	CBC06	2	3	3	4	3	4
		CBC07	4	3	4	3	3	4
		CBC08	3	2	3	4	3	4
		CBC09	2	3	2	2	2	3
		CBC10	3	3	2	4	3	4
	G07	CBC11	4	3	4	3	3	4
		CBC12	4	3	3	4	3	4
		CBC13	3	2	2	3	3	4
		CBC14	3	3	3	3	3	3
		CBC15	4	3	3	3	3	4
	G08	CBC16	4	4	5	5	4	4
		CBC17	3	2	2	4	3	4
		CBC18	4	3	4	4	3	3
		CBC19	3	2	2	3	2	3
		CBC20	3	3	2	2	3	3
	G09	CBC21	3	2	3	3	2	4
		CBC22	4	3	2	4	2	3

		CBC23	4	3	2	4	2	3	
		CBC24	3	2	3	2	3	4	
		CBC25	3	2	2	3	2	3	
	G10	CBC26	2	3	3	2	3	4	
		CBC27	2	3	3	3	2	3	
		CBC28	3	3	4	4	2	3	
		CBC29	4	2	3	4	3	3	
	G11	CBC30	4	3	4	5	3	3	
		CBC31	4	2	3	4	2	4	
		CBC32	3	2	2	3	2	3	
		CBC33	3	3	3	4	3	4	
		CBC34	3	3	4	4	3	4	
	E.S.O.	G12	CBC35	3	3	2	2	2	2
			CBC36	3	4	4	3	3	4
CBC37			4	5	4	4	4	4	
CBC38			3	3	2	3	2	3	
CBC39			3	3	3	3	3	3	
G13		CBC40	3	2	3	3	2	4	
		CBC41	4	3	2	4	2	3	
		CBC42	4	3	2	4	2	3	
		CBC43	3	2	3	2	3	4	
		CBC44	3	2	2	3	2	3	
G14		CBC45	3	3	3	3	3	3	
		CBC46	4	5	4	4	3	4	
		CBC47	3	4	3	3	4	3	
		CBC48	3	3	3	3	4	4	
		CBC49	3	3	2	3	2	3	
G15		CBC50	2	3	3	3	4	3	
		CBC51	3	3	4	5	4	4	
		CBC52	4	3	3	4	3	3	
		CBC53	5	4	4	4	4	3	
G16		CBC54	4	3	2	3	2	3	
		CBC55	3	3	3	3	2	3	
		CBC56	3	2	3	3	3	4	
		CBC57	3	2	2	4	3	3	
		CBC58	2	3	3	4	4	4	