# Assessment Rubric BSc Research projects Physics and Astronomy Leiden University

| | Insufficient (<6) | Sufficient (6-6.5) | Good (7-7.5) | Very Good (8-8.5) | Excellent (9-10) |
|---|---|---|---|---|---|
| **Research Quality** | | | | | |
| **Scientific Knowledge**: <br> **1.** Direct Research Context <br> **2.** Literature Review <br> **3.** Broader Scientific Framework. | **1.** Clear gaps in knowledge; <br> **2.** No depth/no use of earlier academic materials; <br> **3.** Unclear and inadequately explained. | **1.** Marginal knowledge with one/two deficiencies; <br> **2.** Limited depth and use of earlier academic materials; <br> **3.** Comprehension not beyond physics problem at hand. | **1.** Sufficient knowledge for project; <br> **2.** Adequate depth and use of earlier academic materials; <br> **3.** Sound understanding, able to discuss project scientifically. | **1.** Thorough understanding and critical attitude to information; <br> **2.** Use of new literature beyond provided; <br> **3.** Goes beyond the minimal parameters of the project. | **1.** Intimate understanding of the material; <br> **2.** Regularly contributes new literature; <br> **3.** Full awareness of broader relevance. |
| **Research Skills:** <br> **1.** Preparation; methodology; structured approach <br> **2.** Experimental & Analytical Skills | **1.** Unable to complete without intervention; failure to follow correct procedures; <br> **2.** Very limited research skills. | **1.** Able to complete research project with difficulty/under supervision; <br> **2.** Limited creativity; long time to learn new research skills, and can still improve. | **1.** Reliable forward thinking towards project goals; <br> **2.** Able to learn new skills adequately. Making decisions on her/his own was difficult. | **1.** Fast, reliable, project oriented thinking with minimal supervision; <br> **2.** Innovative. | **1.** Essentially fully independently performed high level research; <br> **2.** Innovative. Connections beyond original boundaries. |
| **Scientific Quality of Work:** <br> **1.** Quality and reliability, including record keeping and reporting. <br> **2.** Critical Attitude, dependability | **1.** Level/quality did not supersede that of simple practicals; <br> **2.** Did not verify or extend knowledge, data, or methods of group. | **1.** Level/quality are sufficient; some results may not withstand a more thorough analysis. <br> **2.** Modest contribution to knowledge, data or methods already available in group. | **1.** The results are acceptable, but not for publication; <br> **2.** Extended existing knowledge, data or methods available in group. | **1.** Resulting data or theory can be a useful starting point for publication; <br> **2.** Fulfilled most of the potential of research project. Produced new methods, insights or understanding for group. | **1.** Quality results that can be used for publication directly. <br> **2.** Reliable data generated independently; contribution of original methods, insights or understanding. |
| **Learning Process** | | | | | |
| **Professional skills:** <br> **1.** Independence, Initiative, <br> **2.** Response to feedback, Communication & Collaboration | **1.** Unable to work independently; <br> **2.** Unable to incorporate feedback or collaborate. Communication inefficient. | **1.** Detailed instructions required, though to some extent able to work independently. <br> **2.** Incorporates feedback. | **1.** Expected level of independence; <br> **2.** Generally asked advice and approached supervisor to discuss research. | **1.** Mostly independent; demonstrates significant initiative; <br> **2.** Asked relevant and innovative questions during meetings. | **1.** Nearly fully independent; <br> **2.** Beyond "very good", e.g. asked advice with others. Full collaborator outside normal scope. |
| **Management Skills:** <br> 1. Productivity <br> 2. Planning, Project and Time management; | **1.** Productivity very low; passive attitude; cuts corners. <br> **2.** Periods of absence without reason. Poor time management; thesis not ready in time. | **1.** Completed project with minimal effort; marginal commitment. <br> **2.** Time spent barely sufficient; trouble keeping deadlines; thesis just on time. | **1.** Adequate productivity; positive attitude; <br> **2.** Able to plan ahead and account for contingency, keeps to agreed milestones. | **1.** Better than average productivity. <br> **2.** Is able to revise planning as needed and keeps to agreed deadlines; focus on well-prioritized tasks without losing the plot. | **1.** Outstanding productivity; <br> **2.** Professional approach; all steps towards completing thesis essentially on time. |
| **Reports and Communication** | | | | | |
| **Thesis writing:** <br> **1.** Structure, Clarity, Style <br> **2.** Description of problem/methods <br> **3.** Results and Discussion/Contextualisation. | **1.** Unclear, poor structure, non-academic level writing. Key figures missing/unclear. <br> **2.** Problem/hypothesis not defined. Essential details missing. <br> **3.** Poor use of literature. | **1.** Comprehensible writing; readable and consistent; proper use of technical language/data presentation. <br> **2.** Problem/method poorly defined/described. Too many/few details. <br> **3.** Results presented without coherence. Missing literature. | **1.** Clear scientific writing, well substantiated. Coherent thought out structure; good figures; <br> **2.** Methods appropriately described. Possible for others to repeat experiment. <br> **3.** Provides scientific context and places it appropriately in relation to existing literature. | **1.** Clearly written report with clear arguments; minor help from supervisor; coherent well thought out structure, <br> **2.** Sharply defined hypothesis. Methods well described. All info available <br> **3.** Scientific context includes comprehensive literature references | **1.** Publication quality with minimal input from supervisor; coherent, well thought-out structure, <br> **2.** Clear and concise. <br> **3.** Excellent placement in broader research area. Extensive literature references & future directions. |
| **Oral presentation** <br> **1.** Contextualization and delivery at appropriate academic level. <br> **2.** Clarity, Style, Structure, <br> **3.** Handling questions | **1.** Vague and unclear to the audience; <br> **2.** Slides illegible or do not support storyline. <br> **3.** Inadequate response. | **1.** Only experts can follow; Not placed in broader picture. <br> **2.** Minimal structure and storyline. <br> **3.** Just handles questions. | **1.** Fellow students can understand; placed in context. <br> **2.** Good storyline supported with appropriate slides. <br> **3.** Handles questions acceptably. | **1.** Fellow students are able to restate the essence. <br> **2.** Clear presentation including details, without going off-topic; <br> **3.** Good answers w. discussions. | **1.** Professional presentation that gets the message across; <br> **2.** Slides 1-to-1 with storyline; <br> **3.** Knowledgeable answers that show mastery of subject. |