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**ASSESSMENT FORM BACHELOR RESEARCH PROJECT
BIOMEDICAL SCIENCES**

Name student : _____
Student number : _____
Start date : _____ **End date:** _____
Number of weeks : _____ , equivalent to _____ ECTS

Name supervisor : _____
Department : _____
Institute : _____
Phone number : _____
Project (title) : _____

Board of Examiners

Final mark: _____ (a number, whole or halve in the range 5-10)

Credits _____ **ECTS**

Date: _____

Signature: _____

Name: _____

Assessment Bachelor Research Project

Student Name: Student number:

Project Activities

1. Knowledge: the student is able to make use of his/her knowledge when conducting experiments

- knowledge demonstrated by student in approach and in conversation
- knowledge of relevant literature
- understanding of the experimental set-up and of the methods used
- critical approach to sources

1	2	3	4	5

(for an explanation of the scale values see supplemental information, points C. and D.)

2. Practical research skills: The student has demonstrated competence in the applied experimental activities of the project

- handling the protocols to perform experimental research
- precision
- applied skills (e.g. use of statistical methods, use of lab equipment)

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3. Independence: the student is able to work independently

- independence
- taking the lessons quickly
- planning
- when necessary, seeking advice from the project supervisor
- knows strengths and weaknesses of himself/herself, of the activities performed, and of results obtained

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4. Originality: the student is able to contribute new ideas

- viewing/approaching the research from an unexpected angle
- drawing surprising conclusions from own research
- discovering innovative links to other research
- thinking up new applications, experiments, methods etc.

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5. Scientific quality of the research: the student is able to conduct innovative research and shows academic attitude

- quality of results
- quality of interpretation/drawing the right conclusions
- quality of the evaluation
- displays critical behavior as to workplan and results obtained

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6. Social skills: the student is able to function adequately in the research group

- cooperating with the group/ is aware of his/her role in the group
- makes use of the project supervisor/group's advice
- is open to criticism / can be introspective
- helpful and amicable
- regularly reports results

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7. Student motivation

- enthusiasm
- enthusiastic for/inspired by the research, contributes to discussions

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Total score project activities

Written report

8. Scientific content: efficacy and argumentation

- problem definition
- background of research
- verification of (measuring) methods
- experiments/analyses
- conclusions
- discussion of the experiment (relationship of the problem definition to other research)

1	2	3	4	5

(for an explanation of the scale values see supplemental information, points C. and D.)

9. Scientific writing skills

- format: abstract, introduction, materials and methods, results, discussion
- use of language: clarity, readability and effectiveness
- use of language: word choice, grammatical accuracy, spelling
- presentation of the data: quality of figures and tables, references, lay-out

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Oral presentation

10. Content/Structure

- title
- clearly structured (introduction/key points/conclusions/discussion)
- quality of the explanation (being able to explain well)
- the audience gets an answer to the purpose of the study
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11. Presentation Skills

- liveliness (posture, enthusiasm)
- use of supporting media (powerpoint)
- contact with audience (eye contact, answering questions, discussion)
- use of time
- use of voice, intonation and articulation

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Total score 'Oral presentation'(10-11) _____

Assessment in words (strengths, points requiring improvement, etc.) and signatures

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Date..... Name Signature.....

To be filled out by the LUMC coordinator if the project was done outside the LUMC :

Hereby, I approve the assessment,

Name LUMC coordinator: _____

Date : _____

Signature: _____

Supplemental Information

A. Evaluation

Each of the assessment areas (1-11) is accompanied by a few key aspects placed in a hyphenated list. Read all assessment aspects *before* you assess the student on that particular area to avoid overlap between assessment areas. It is expressly the idea to evaluate each assessment area independently of the others (by which we mean that each assessment area is assessed without looking at an assessment you have made in another area). Furthermore, you are requested to take into account that you assess a Bachelor student, and thus to interpret each assessment area according to the educational level the student is supposed to have arrived at.

B. Using the form

This form is meant, on the one hand, to standardise the assessment and, on the other hand, to provide the student with feedback on his/her performance. You should hold at least one evaluation meeting with the student during the project period where you can make use of points 1 to 7 on this form as an aid. The student should not be surprised by the final assessment. A final assessment can have a higher score than the interim evaluations; the student can, of course, improve over time.

C. Scale

When assigning points on the scales, keep in mind the following:

- 5: Excellent:** Belonging to the top 5% of the students; you will likely not encounter such a student more frequently than once every 5 years.
- 4: Good:** Belonging to the top 20% of students; you will likely not encounter such a student more frequently than once every year.
- 3: Fair:** Belonging to 60% of students; you will encounter such a student frequently.
- 2: Sufficient:** 90% of students will **not** fall into this category; you will encounter this student far less frequently than the 'fair student'. This student is a student who does the bare minimal necessary to pass.
- 1: Insufficient:** 99% of students will **not** fall into this category; this student should be guided in such a way that he/she will yet learn sufficiently and acquire sufficient skills to achieve a (barely) sufficient mark.

D. Examples of interpretations of the scale for the various assessment areas

1. Insufficient	2. Sufficient	3. Fair	4. Good	5. Excellent
1. Knowledge				
The student's knowledge is constantly inadequate.	The student has deficiencies in several fields of knowledge.	The student possesses sufficient knowledge to be able to function during research. Reads the recommended literature.	The student possesses vast knowledge, contributes new literature repeatedly, and can deal with information in a critical fashion.	The student regularly contributes new literature, demonstrates an excellent knowledge of the material during conversations, and can place the experimental set-up in a theoretical framework.
2. Practical Research Skills				
The student works sloppily, demonstrates insufficient practical skills. Student cannot reproduce experimental conditions from logbook.	The student must be regularly reminded of the importance of working with precision, but does take this advice to heart. The student has acquired the necessary practical skills by the end of the training period. Logbook may be understandable to student, but not to others.	The student works with precision and understands why certain procedures are necessary. He/she understands generally when and how to apply certain techniques. Logbook records experimental procedures broadly but not in great detail.	The student is precise, uses direct applied research skills that have been acquired in a previous phase of his/her education and quickly learns new techniques. Rarely requires an explanation about the relevance of procedures. Occasionally takes independent decisions about the adjustments to the experiment. Logbook provides much experimental detail, but lacks consistency in places.	The student is an extremely precise worker who can directly apply previously acquired experimenting skills. Sees the connections between different procedures, proposes possible adjustments to the experiment. Knows pros and cons of techniques used in the training period. Logbook enables others to understand and replicate experiments.
3. Independence				
The student barely works independently.	The student must be firmly guided by the supervisor, barely sees own weak points.	The student can work independently, makes schemes, uses proper time-planning, and generally asks advice when feeling insecure.	The student mostly works independently, plans well, and quickly learns to take a position in the department. Is capable of reflecting on his/her own activities.	The student works independently, has good and realistic planning, and reflects on his/her own activities, work processes and skills in an excellent way.
4. Originality				
The student conducts the research without adding new elements, without adding an own contribution.	The student contributes some perspectives to the research by him/herself, after being directed by the supervisor.	The student brings his/her own perspective to the research, presents new ideas on several occasions. These ideas are not always very practical.	The student places the research in a broad perspective, proposes novel and useful ideas and thus arrives at an original contribution.	The student is able to devise and set-up new methods, experiments and techniques. Has excellent and original interpretations.

1. Insufficient	2. Sufficient	3. Fair	4. Good	5. Excellent
5. Scientific Quality of the Research				
The student only begins to understand the relevance of the procedures after considerable explanation. Resulting data entirely unreliable.	The student understands the relevance of procedures after having them explained to him/her, but is not yet capable to exploit this to increase the reliability of his/her work.	Understands how experimental procedures can influence reliability of data, but student has nonetheless difficulty in applying this to his/her own project. The results cannot be used for scientific publication unless thoroughly checked and duplicated by supervisor.	Student suspects that obtained results may not be completely reliable, and is able, with guidance by the supervisor, to pinpoint which step in the experimental procedure could be responsible for that. Resulting data can be useful starting-point for a publication, but must be validated.	Student is capable of gauging the reliability of obtained results, to understand the limits of their validity and the influence of possible methodological shortcomings. Student is capable of analysing this problem, and generating reliable data independently. Student interprets his/her own results cautiously and in the context of related work by others. Resulting dataset can be used for publication directly.
6. Social Skills				
Someone who completely goes his/her own way. Does not act as a member of the research group. Not responsive to advice. Denies advise and critical comments.	Does join the group, but has trouble working with them. Rarely communicates with others. Listens to advice, but uses it very selectively. Reacts positively to criticism, but seems unable to modify his/her behaviour accordingly.	Works quite well together, easily becomes part of the group. Makes use of advice and criticism as he/she progresses. Helps others when necessary and reports back with the acquired results.	Works well together with others. Asks for advice only when necessary and stimulates others to comment on his/her work. Knows how to incorporate comments into his/her research and behaviour. Is amicable. Regularly clarifies acquired results.	Works very well with others and occasionally takes the initiative. Asks supervisor and others for advice when necessary and is open to criticism about themselves and their work. Knows how to incorporate comments into his/her research and behaviour. Is a helpful and amicable colleague. Likes to assist others.
7. Student Motivation				
Does not feel that this research is necessary. Cuts corners. Is often absent or is doing things unrelated to the present project. Is easily distracted from main task.	Does the scientific research because it is required. Works tidily and conducts the research within the framework that the training period supervisor has stipulated. Shows little interest in carrying out the research. Time spent to research is hardly sufficient.	Is clearly interested in scientific research and sees this as an essential component for future employment. Is willing to give up a lot. Sees the conducting of scientific research as a necessity for furthering the study of biomedical sciences.	Works hard and sees scientific research as an essential component of biomedical studies. Eager to show that he/she would like to become a researcher and is, in that sense, a source of great enthusiasm. Shows involvement as is demonstrated by an eagerness to communicate research results.	Shows exceptional interest in scientific research. Works hard all the time. Indicates willingness to thrive on getting a publication in a reputed journal. Demonstrates a passion for increasing knowledge by, for instance, wanting to know everything about a subject. Uses this knowledge and shares it. Is able to motivate the people around him/her (incl. supervisors).
8. Written report: Scientific content				
The report does not meet the standard requirements. Description of the research is lacking. There are major flaws in reasoning. Shows insufficient understanding of research topic	The report is hardly sufficient. The requirements have been met, but the report is missing depth and coherence, e.g. there are conclusions that do not clearly follow from the definition of the problem, the description of the theoretical framework is limited. The analysis and discussion lack original aspects and are not related to a wider framework.	The delineations of the problem definition, the hypothesis, the analysis, the interpretation and the discussion are presented. Methods section adequate. A fair report that meets the standard requirements. Interpretation of the findings may be superficial at some points.	Sharply defined problem (using sub-questions), hypotheses and analyses are clear, relevant and provide new insights; interpretation and discussion are of good scientific quality and connect very well with the problem definition and analyses. Methods are clearly described. Well-chosen references. Good placement in a broad research area. A great deal of depth.	The research is described in an excellent way, and meets all criteria of a thorough scientific report. Excellent statistical analysis. Results are discussed critically. Figures, tables and references are of the highest quality. Original contribution, that can be of interest to scientific journals.
9. Written report: Scientific writing skills				
The report does not conform to the format of a scientific article. Some sentences are incomprehensible. Poor lay-out. Figures etc. are missing or are inadequate or illegible.	The structure of the report is borderline acceptable. Text contains language errors; some sentences are ambiguous. Lay-out is untidy. Figures and tables are unclear and difficult to read.	The structure of the report is adequate. Use of language, grammar and spelling sufficient. Lay-out is tidy. Figures, tables and references are clearly presented.	The structure of the report is adequate. Virtually no language or spelling errors. High level of readability. Appropriate lay-out. Figures, tables and references are clearly presented.	The report is of excellent quality: it could be submitted to a scientific journal. Language usage, readability and flow are excellent. Appropriate lay-out. Figures, tables and references are clearly presented..
10. Oral presentation: Content and Structure				
Opening is poor, content is unsubstantiated, conclusions do not follow clearly from the presented results. No discussion. No coupling to international literature.	Provides a fragmented view of the research. The results are presented well, but the substantiation is moderate. The presentation is not easy to follow and conclusions do not always follow from data. The discussion is weak.	Provides a reasonable view of the research, indicates what the core points are, but the presentation can be clearer on several points. Correlation can be better. Explanations of how certain conclusions were reached are not always clear. Fitting the research into a broader framework is not adequate at all points.	Provides a structured picture of the research, including introduction, hypothesis, purpose of the study, results and discussion. Good and clear presentation of the experiments. The student knows how to explain the position of the research in a larger framework. Good discussion.	Excellent structure, relevant introduction which connects with the aims of the study, fascinating results, good graphics, excellent discussion, clear implications with perspectives on future research. Would fit as a lecture at international conference.

1. Insufficient	2. Sufficient	3. Fair	4. Good	5. Excellent
11. Oral presentation Skills				
Poor slides, no contact with audience, cannot answer questions. No convincing power.	Flat tone, many stop-gaps, average slides and minimal contact with audience; runs too long. Is able to answer some questions and elaborate on research marginally.	Knows how to retain the interest of listeners, but is not alert to reactions from the audience. Good slides that provide the audience with information. Just about comprehensible, not clearly balanced sections.	Lively and enthusiastic presentation, clear formulations, easy to follow, nice slides, good (eye) contact with the audience, good time-planning. Knows how to keep the audience interested. Is quite capable to address questions raised by the audience	Charismatic presentation, beautiful audiovisual support, interesting formulations, adapts to/with the audience, leaves space for discussion, good time-planning. Would be appropriate for presentation at an international congress.

E. Assessment in words and signature

A student's strengths and weaknesses can be indicated here, but also other points that affect the assessment but do not become apparent in the assessment areas above. Please do not forget to sign the form at the end.

F. Calculation final score

To obtain the final score of the 11 activities the following calculation is made:

score of 'Project activities (items 1-7)'	maximum 35 points
score of 'Report-content (item 8)' multiplied by a factor 9	maximum 45 points
score of 'Report-writing skills (item 9)' multiplied by a factor 2	maximum 10 points
score of 'Presentation (items 10-11)'	maximum 10 points
total score	maximum 100 points

In the following table the total score can be calculated:

Aspects	Sub-score	Multiplicator	Score
Project activities (1-7)		35	
Report – content (8)		5 (x9)	
Report – writing skills (9)		5 (x2)	
Presentation (10-11)		10	
Total	-----	-----	

To obtain the credit points for the Bachelor Research Project, the student should be awarded at least

- 14 points for "activities" (items 1-7)
- 2 (x9) points for "written report" (item 8)
- 2 (x2) for "scientific writing" (item 9)
- 4 points for "oral presentation" (items 10-11)

When the student has failed to obtain one of these minimal subscores, the Board of Examiners decides whether and how the student can obtain a sufficient score.

The following table is used to convert the total score to a final mark:

range	final mark
<40	5
40-50	6
51-56	6.5
57-63	7
64-70	7.5
71-76	8
77-83	8.5
84-90	9
91-96	9.5
97-100	10