



Graduation Project

Faculty of Biotechnology

RS-400/ RS-401

Graduation Project Coordinator

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A Message to Biotechnology Students

Dear Student,

The goal of the graduation project is to give you an opportunity to demonstrate the scientific knowledge, skills, talents and abilities that you have gained and refined during your presence as an undergraduate student at the faculty of biotechnology. This project will fulfill a requirement set forth for you by both the October University for Sciences and Arts and The University of Greenwich.

The graduation project offers you the opportunity to choose your area of interest, to combine different disciplines and ideas, to explore new avenues in a productive manner, and, at the same time, incorporate the principles in the faculty's mission statement, as well as the October University for Sciences and Arts education standards. Depending on the area of study, individual projects may demonstrate mastery of the University of Greenwich's Standards for other disciplines as well.

As you begin to design and formulate possible ideas for your graduation project, please remember that a successful graduation project should:

- Provide a challenge
- Exhibit self-directed/independent thought
- Demonstrate knowledge, skills, talents and interests
- Communicate all steps of the process used to complete the project
- Contain well-written, thorough documentation
- Display personal growth and learning gained through the completion of the project
- Present a clear investment of time and energy
- Result in a clear, concrete outcome or tangible product
- Illustrate care and personal integrity when fulfilling all requirements and meeting timelines
- Culminate in a creative, unique, well-organized presentation that utilizes your strengths

Your graduation project should, upon completion, fulfill all of these elements. Your proposal, written portion, self-evaluation/ reflection and oral presentation should illustrate how your project is a success when measured against these criteria.

Read the following pages carefully

Sincerely,

Ayman Diab

Course Description

Course Code: RS 400 and RS 401
Course Title: Research Project
Course Coordinator: Dr. Ayman Diab
Dr. Gehan Safwat
Level: 4 (1st Semester)

School: Biotechnology (MSA)
Credit: 11 credit hours
Pre-requisites: SEM 302
Subject Group: Research & Seminar

AIMS

The aims of the course are:

- To enable students to undertake a research project in an area of biotechnology
- To develop laboratory skills to become independent in designing and executing experiments.
- To develop their ability to present, interpret and discuss research results, having students acquire the ability to design and execute research experiment.
- To provide hands-on experience with routine laboratory equipments.
- To acquire a practical understanding of experimentation to complement lectures.
- To have capability of working independently and in a research team.

LEARNING OUTCOMES:

Upon completion of this course, students will be able to:

Knowledge:

- Appreciate the efforts and experiences needed in the execution of seminars or research topics.
- Investigate new subjects through designing and executing research experiments.
- Evaluate the results of a new search and interpret the appropriate results into a research project or manuscript to be presented.

Skills:

- Acquire searching, writing and problem-solving skills.
- Design appropriate experimental or data collection techniques.
- Acquire scientific presentation skills, both oral and written, whether as a seminar or a research report.

- Work independently and apply their knowledge and skills to the solution of a specific theoretical problem.
- Critically assess research results and the work of others i.e. published materials.
- Use all relevant literature sources to carry out a detailed search into a general topic and a specific scientific problem.
- Prepare a detailed and structured report on the project.
- Present clear oral presentations with appropriate and adequate use of supporting visual aid material.
- Manage their time, plan ahead and prioritize their activities.

Main Learning and Teaching Activities :(Strategies)

Supervision is arranged to ensure that the student progresses at an appropriate pace through his/her project and also draws upon his/her own initiative and store of relevant knowledge. Students will be expected to make full use of computing facilities, laboratories, special purpose equipment, library and other facilities. It will be the responsibility of the project supervisor to ensure that students do not devote a disproportionate amount of time and effort to their project work, at the expense of their other academic work.

Assessment Details:

Methods of Assessment	Weighting %	Pages	Outline Details
Written report	50%	60-80	Students will present a written report of the theoretical, practical work & literature search together with a critical evaluation of the work & results in the form of the following: <ol style="list-style-type: none"> 1- Project Title 2- Objectives 3- Abstract 4- Acknowledgment 5- Introduction (Literature review) 6- Materials and Methods 7- Results 8- Discussions 9- Recommendations (if applicable) 10- References
Practical work	30%		Supervision of successive result achievements through regular inspection of the student's lab note and evaluation sheet to be filled by the external supervisor.
Oral Presentation	20%		

Assessment will focus upon:

- The general organization of the report and quality of the written English.
- A clear and concise abstract.
- The extent of the student's achievement of the original or modified objective(s) of the project.
- The critical evaluation of data or a critical review of theoretical published work.
- The critical discussion of the results leading to appropriate conclusions.
- Evidence of professional standards applied throughout the project (i.e. documentation standards, lab activities, lab notes and documentations of the results).
- Provision and evidence of the use of appropriate references and bibliography.
- The accuracy and technical merit of the project.
- The merit of the written report and oral presentations in addressing non-technical issues.

NOTE: The written report will be checked for Plagiarism using turnit in software. Reports with more than 20% plagiarize will be rejected. Each students will have only one chance to resubmit the final project report.

The project supervisor(s) will prepare a report and fill an evaluation sheet on the project which will include an assessment of the difficulty of the project, the student's approach to it, the accuracy and reliability of the results and conclusions and the quality of the final project report. The student's project as written report and oral presentations will be made available for the external examiners.

Indicative Texts:

A range of appropriate research literature to cover the topic of the project will be determined by the direct supervisor(s), however, the students are encouraged to search and use appropriate references for their project research.

Project Guidelines

I) Introduction

The students will spend 22 hours per week for a twelve week period undertaking the project; the students will present their results at a series of seminars to an audience of the peers and academic staff. The students will subsequently submit a typed report of the research for reviewing by faculty staff member(s) and two external examiners.

This Guide has been prepared by the Faculty of Biotechnology staff members in order to give general guidelines for the contents of the project proposal.

II) Documents to be submitted before lab work

The following sections are to be filled by the student and his/her direct supervisor(s) and to be submitted to the Faculty Dean before starting the actual lab work: -

PROPOSAL

1. Title page
2. Project Background
3. Objectives
4. Statement of Proposed Research
5. Time table and Mile stones
6. Ethics approval form

1. Title page

- A concise and informative title
- The Student and the supervisor(s)
- The affiliation(s) and address(es) of the supervisor(s)

2. Project Background

This is the most important part of the project. You must have a baseline, which identifies the scope of the problem and your starting point in addressing it.

The proposal Background should:

- Describe the need for this kind of project
- Outline the portion of this larger problem you plan to deal with
- Include Expert opinions (including quotes)

- Include Literature review
- Document the significance of the problem with Data

3. Objectives

The objectives should describe clearly the expected general outcome(s) of the research project. *The objectives should be achievable within the project duration (12 weeks)*

4. Statement of Proposed Research

This section describes what you want to accomplish. You must describe the statement of the proposed research using “SMART” way

- Specific
- Measurable
- Achievable
- Realistic
- Time-Limited

5. Time table and Mile stones

Using a time chart, specify the activities and the time frame for each one. Taking in considerations that your project duration time is 12 week.

III) Writing the final project reports

Using your own words, you are requested to submit a final written report of **60-80 pages** using **time new roman** font and **12pt font size**. The report should include the following: -

- 1- Title page
- 2- Abstract
- 3- Acknowledgements
- 4- Table of contents
- 5- Introduction (Literature review)
- 6- Materials and Methods
- 7- Results
- 8- Discussions
- 9- References

1. Title page

- A concise and informative title
- The Student and the supervisor(s)
- The affiliation(s) and address(es) of the supervisor(s)

2. Abstract

The abstract (one page maximum) and contains the rationale, objectives, methods, results, and their meaning or scope of application. Be specific. Do not cite references. You may prepare the abstract after the proposal has developed in order to encompass all the key points necessary to communicate the objectives of the project. The initial impression it gives will be critical to the success of the project.

The abstract should include a brief on:

- Summary on the benefits of your project and the expected impact
- Description of the project in view of the local/international needs
- Summary on your objectives and proposed methods
- How your project is innovative

3. Acknowledgements

Acknowledgements pages show the essence of the thesis author and his/her experience.

Acknowledgements do matter because in amongst the celebration the right people need to be thanked in the right sort of way. Most thank funders, supervisors, close colleagues and family. This means it is effectively a snub if someone important is not thanked. The following list includes those people who are often acknowledged.

Note however that every project is different and you need to tailor your acknowledgements to suit your particular situation.

Main supervisor

Second supervisor

Other academic staff in your department

Technical or support staff in your department

Academic staff from other departments

Other institutions, organizations or companies

Past students

Family

Friends

4. Table of contents

It helps to have the subheadings of each chapter, as well as the chapter titles. Remember that the thesis may be used as a reference in the lab, so it helps to be able to find things easily.

5. Introduction

The introduction should state the purpose of the investigation and give a short review of the pertinent literature.

6. Materials and Methods

This section is the core of your proposal, it should describe your project design, and how will you be able to achieve your objectives. It should explain in a narrative way, different activities that you intend to take during the lifetime of the project, and it must explain the rationale for the program (relate it to the problem) and explain how the program will work. Main elements of this section should include:

- Description of the methods you used to accomplish each of your objectives
- The details of the procedures and the list of chemicals used in the project

7. Results

The results section should describe the outcome of the study. Data should be presented as concisely as possible. Use tables, graphs, figures, pictures or any illustration to better present your results. All Figures and Tables should be cited in the text, and each numbered consecutively throughout.

1. Determine which results to present by deciding which are relevant to the question(s)

Presented in the Introduction irrespective of whether or not the results support the hypothesis (es).

2. Organize the data in the Results section in either chronological order according to the Methods or in order of most to least important. Within each paragraph, the order of most to least important results should be followed.

3. Determine whether the data are best presented in the form of text, figures, graphs, or tables.

4. Summarize your findings and point the reader to the relevant data in the text, figures and/or tables. The text should complement the figures or tables, not repeat the same information.

7. Make sure that the data are accurate and consistent throughout the thesis.
9. Use the past tense when you refer to your results.
10. Number figures and tables consecutively in the same sequence they are first mentioned in the text.
11. Provide a heading for each table and the ligand for each figure. Each figure and table must be sufficiently complete that it could stand on its own, separate from the text.
12. Write with accuracy, brevity and clarity

8. Discussions

The Discussion should be an interpretation of the results and their significance with reference to work by other authors. The purpose of the discussion is to state your interpretations and opinions, explain the implications of your findings, and suggest future research.

It should answer the questions asked in the Introduction; explain how the results support the answers and, how the answers fit in with existing knowledge on the topic. Usually the discussion has the following parts:

1. It should state the main findings of the study in one or two sentences.
2. The discussion should consider the methods, and address possible shortcomings. Defend your answers, if necessary, by explaining both why your answer is satisfactory and why others are not. Only by giving both sides to the argument can you make your explanation convincing.
3. Identify potential weaknesses, and comment the relative importance of these to your interpretation of the results and how they may affect the validity of the findings. When identifying limits and weaknesses, avoid using an apologetic tone.
4. Support the answers with the results. State why they are acceptable and how they are consistent with previously published knowledge on the topic.
5. Discuss any unexpected findings. When discussing an unexpected finding, begin the paragraph with the finding and then describe it.
6. Explain how the results and conclusions of this study are important and how they influence our knowledge or understanding of the problem being examined.

9. References

The reference list should appear at the end of the project report and should be cited in the text. References should only include works that have been published print and online. Papers which have been accepted for publication should be included in the list of references with the name of the journal and “in press”. Personal communications should only be mentioned in the text.

How to cite references:

Journals:

Kraft T, Hansen M, Nilsson N-O (2000) Linkage disequilibrium and fingerprinting in sugar beet. *Theor Appl Genet* 101:323–326

Books:

Larcher W (1995) *Physiological plant ecology*, 3rd edn. Springer, Berlin Heidelberg New York, pp 87–109

Multiauthor books:

Hovind HJ (1986) Traumatic birth injuries. In: Raimondi AJ, Choux M, Di Rocco C (eds) *Head injuries in the newborn and infant. (Principles of pediatric neurosurgery)* Springer, Berlin Heidelberg New York, pp 87–109

Organization site:

ISSN International Centre (1999) *Global ISSN database*. <http://www.issn.org>. Cited 20 Feb 2000

IV) Final project report Due Date

The due date for submitting the final project report is 25th January 2014 t. However, Students are encouraged to submit a draft for editing by the advisor(s) before the dead line. You are requested to submit both hard and soft copy of your final project report.

Student's Responsibility

General Rules

- 1- Present in the laboratory on time and dates specified by the supervisor
- 2- Bringing his/her own lab coat and stationeries
- 3- Follow the rules and regulations of the hosting institute
- 4- Work and deal with other people in the hosting institute in a respectable and friendly manner
- 5- The student's scientific achievement and personal behavior will be monitored by the student's external supervisor and the Faculty administration.
- 6- The scientific ethics should be followed in recording the research project results

Lab Notes

- 1- It is the student's responsibility to provide a lab note book (Hard cover note book with 200-250 papers)
- 2- The students should use this note book to write down and document all his/her activities in the lab on a daily base.
- 3- This not book should be signed by the field supervisor on a weekly base.
- 4- The student should submit the signed lab note in 25th January 2014 for evaluation

Calendar of Due Dates

Listed below are the due dates for each segment of the Graduation Project. Any item may be submitted for review before the due date; however, no portion of the project may be submitted after the **FINAL** date listed below. Any student who fails to successfully complete the Graduation Project will not graduate at the end of the academic year and will be required to repeat their senior year in order to complete their Graduation project. No one will receive an extension for time unless s/he can prove that there was an extreme and documented emergency that is approved by the Graduation Project Team and/or the Dean.

<u>Item</u>	<u>Due Date</u>
Project Proposal Form	Monday, 11th October, 2015
Research Ethics Committee's Form	Monday, 23 rd November, 2015
Proposal	Monday, 30 th November, 2015
Research Paper Draft for Turnitin check	Saturday, January 23 rd , 2016
Graduation Project Writing Report	Saturday, January 30 th , 2016
Graduation Project Presentations	Saturday, February 6 th , 2016

GRADUATION PROJECT REQUIREMENTS

There are four separate elements to the Graduation Project:

1. Lab Performance Report "signed by the lab advisor"
 2. Research Ethics Committee's Approval
 3. Draft of the thesis "to be checked on the turn-it in"
 4. Research Thesis "approved by the graduation committee"
 5. Presentation of your product
1. The **LAB PERFORMANCE REPORT** is a provided form that describes your ability to work in a lab and to demonstrate your ability to solve problems and to deal with equipments, apparatus and chemicals.
 2. The **RESEARCH ETHICS COMMITTEE** is to increase the amount of legislations that have been introduced to protect research participants. Ethical codes target the researchers, but ethical committees have come into existence to aid the researcher and to ensure that rules are followed. Ethical rules and codes have emerged within medical research, and still today in most countries, the legal requirements for research protocols to be checked by ethics committees are confined to medical research.
 3. The **DRAFT OF THE THESIS** is a useful way to check after you for plagiarism to ensure originality, as well as use of proper citation.
 4. The **RESEARCH THESIS** is the written requirement that will be fulfilled as part of graduation process. The research paper has specific requirements that are outlined elsewhere in this document. The research paper will be graded by three different professors and will be a part of the student's graduation grade.
 5. The **PRESENTATION** is the oral staging or explanation of your product. It is the final step in the Graduation Project. The presentation should be 15 minutes, with an additional 5 minutes for questions and answers. Each student will present his/her product to a group of faculty members of the Faculty of biotechnology and other members of a scientific committee. "Parents, friends and relatives are allowed to attend the presentations".



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Submitting your Proposal

A successful proposal includes specific details and explains clearly how you will meet the goals of your chosen project. Proposal should be neat, typed, and free of grammatical and spelling errors. "Forms will be provided".

After you have completed your proposal, you submit it to your advisor. S/he will read and comment on your proposal. If the proposal is accepted it will be returned to you and you may begin work on your project. Any proposal that does not meet the criteria will be returned for revision and should be resubmitted within a week. The following list of questions will be used as criteria for accepting a project proposal:

1. Are all elements of the proposal completed with thought and care?
2. Are all required signatures included?
3. Does the project clearly demonstrate a challenge?
4. Does the project exhibit self-directed/independent thought?
5. Is the project a demonstration of knowledge, skills, talents, and/or interests?
6. Is a clear investment of time and energy involved?
7. Will the project result in a clear, concrete outcome or tangible product?
8. Will the project culminate in a creative, well-organized presentation that utilizes student strengths?

Remember - Do not begin your project until your proposal has been accepted!

Thesis Requirement

Length: 60-80 pages typed, double spaced, 12 point Times New Roman font.

Format: 1-inch margins, proper heading and header, with a title page.

Weight: 50 % of marking period grade

Requirements:

- All drafts typed in proper font and size.
- Minimum 5 reputable sources (all must be valid sources from experts in the field or should be published by professionals in the field).
 - At least two sources are to be books.
 - Each source should be referenced at least once within the body of your paper.
- Complete Works Cited page at conclusion of paper.

Topics:

- You may choose to create your own topic, but you **MUST** get your topic approved by your advisor **BEFORE** you begin.
- If you are having trouble picking a topic, please see the coordinator for a possible topic list.

Research Paper Draft for Turnitin check will be on Saturday, January 4th, 2014

NOTE: Any plagiarism will result in return your paper to be revised in two days.

Senior Project Research Paper Rubric

I. Mechanics (25%)

- Usage / Spelling
- Grammar / Punctuation
- Sentence structure and variety
- Typos

II. Structure (50%)

- Title and introduction (15%)
 - Serves as introduction to the play, clearly and concisely sets up thesis
 - Thesis statement
- Body paragraphs (35%)
 - All points support the thesis
 - Supporting evidence from preliminary sources and secondary texts
 - Appropriate explanations and connections discussed by student
 - Organization: logical, clear order and progression.
 - Chronological, order of importance, etc.
- Conclusion (25%)
 - Summary of main ideas
 - No new arguments

FORMS

Graduation Project Proposal Form

Student Name:

Student I.D.:

Advisor:

Project Title:

What is your idea for this project? (Describe your project)

.....
.....
.....
.....

What steps will you take to complete your project? (Make an outline)

.....
.....
.....
.....

Student's Signature: _____ Date: _____

=====

For Advisors Only:

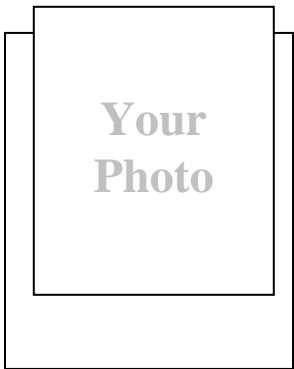
Answer the following questions to approve this project:

- | | |
|---|----------|
| 1. Are all elements of the proposal completed with thought and care? | Yes / No |
| 2. Are all required signatures included? | Yes / No |
| 3. Does the project represent a clear challenge to the student? | Yes / No |
| 4. Does the project exhibit self-directed or independent thought? | Yes / No |
| 5. Is the project a demonstration of skills, knowledge, talents, interests | Yes / No |
| 6. Is a clear investment of time and energy involved? | Yes / No |
| 7. Will the project result in a clear, concrete outcome or tangible product? | Yes / No |
| 8. Will the project end in a creative, well-organized presentation that uses student's strengths? | Yes / No |

Approved Need Revisions Advisor's Signature _____ Date _____

Revisions Approved Advisor's Signature _____ Date _____

Return this completed form to your Advisor



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Receipt of Graduation Project Manual

Student Name: -

Student ID: -

Home Phone No.: -

Cell phone No.: -

Parent's Cell phone No.: -

Email: -

Number of achieved Credit hours: -

Accumulative GPA:-

I hereby acknowledge that I have received a Graduation Project Booklet.

Student's Signature

_____/_____/_____

Date



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Lab Performance Report

Student Name:.....

Student I.D.:

Advisor:

Project Title:.....

Host institute:

Lab supervisor:

- 1- Does the student attend regulary?.....(/10)
- 2- Does the student discuss her/his progress fruitfully with the advisor.....(/10)
- 3- Does the student demonstrate clear method(s) to solve her/his research problems(/10)
- 4- Demonstrate the ability to use equipments to meet scientific standard?.....(/10)
- 5- Does the student apply scientific concepts and thinking related to her/his projects?.....(/10)
- 6- Does the student use proper mathematical statistical forms and formulas?(/10)
- 7- Does the student use logic and appropriate way to evaluate her/his results?.....(/10)
- 8- Does the student have organized mind and work independently?.....(/10)
- 9- Does the student take additional initiatives to extract novel ideas out of project(/10)
- 10- Does the student cooperate with her/his colleagues?.....(/10)

Evaluator:Date:



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Thesis Evaluation Form

Student Name:

Student I.D.:

Advisor:

Project Title:

Host institute:

1- Introduction(/10)

2- Materials and Methods(/5)

3- Discussion and Conclusion(/15)

4- Results.....(/10)

5- References.....(/10)

EvaluatorDate:



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Presentation Evaluation Form

Student Name:.....

Student I.D.:

Advisor:

Project Title:.....

Host institute:

Visuals:

Readable.....(/5)

Consistent Images.....(/5)

Relevant.....(/5)

Understandable(/5)

Concise.....(/5)

Delivery:

Voice Level.....(/5)

Emphasis.....(/5)

Use of Technology.....(/5)

Engagement with Audience.....(/5)

Initiate novel ideas.....(/5)

Contents:

Introduction.....	(/5)
Good Transition.....	(/5)
Organization.....	(/5)
Conclusion.....	(/5)
Flows Well.....	(/5)

Overall Evaluation:

Language.....	(/5)
On time.....	(/5)
Appropriate Answers for Questions.....	(/5)
Appropriate Details for Audience.....	(/5)
Mannerisms	(/5)

EvaluatorDate: