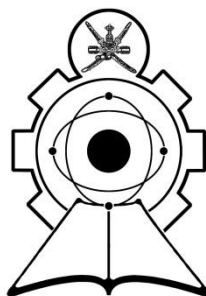


Higher College of Technology

Pharmacy Department



GRADUATION PROJECT - MANUAL

(2016 – 2017)

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1. Graduation Project – Course Details

| | | |
|--|---|--|
| PHAR6400 | Graduation Project | 2 Credit Hours |
| Hours / Wk | 4 | |
| Pre-requisites | PHAR1150 (Pharmacy Practice & Dosage Forms-IV) PHAR3240 (Applied Therapeutics-IV) PHAR2300 (Medicinal Chemistry) | |
| Goal | This course provides pharmacy students the opportunity to conduct simple research projects on a selected topic of interest. | |
| Objectives | | Outcomes |
| <p>The course should enable the students to:</p> <ol style="list-style-type: none"> 1. Learn the different methodologies utilized in research. 2. Get familiarized with the systematic information collection from various sources. 3. Learn statistical and/or analytical techniques to run the analyses and compute results. 4. Write reports 5. Utilize power-point and other presentation techniques for delivering the seminar. 6. Develop communication/presentation skills. 7. Defend their project research work. | | <p>The student should be able to:</p> <ol style="list-style-type: none"> 1. Systematically collect information from various sources on a particular topic of need. 2. Summarize the obtained information into a scientific report. 3. Operate some statistical programs and/or perform some analytical techniques. 3. Prepare Audio-visual presentations of the collected information and defend the scientific content of it. |

1. Introduction

Graduation project course is a partial requirement for the fulfilment of the “Assistant Pharmacy Diploma” program at the Higher College of Technology. This course engages the students in activities outside the classroom. It provides them the opportunity to learn from experience, i.e., learn by doing. This will help developing new skills, new attitudes, and new ways of thinking. This handout provides information about the graduation project’s process, evaluation criteria, a suggested documentation template, and forms.

2. Graduation Project Process

Projects are performed in groups of at least two and at most four students. Each group is assigned a supervisor and an assistant supervisor if necessary. Students must begin working on the project immediately after the project is assigned. The students must meet the supervisor once every week or more (depends on the situation or the circumstance) in order to discuss the completed and upcoming tasks of the on-going project or any obstacles encountered. The project plan must take into consideration the overall deadline as well as report and presentation preparation.

3. Evaluation Criteria

After the completion of all project requirements, the department will assign at least three examiners (examination committee) for each group. The supervisor along with the examination committee will attend the project’s presentation and provide their evaluation of the material presented in the report/presentation.

The evaluation process is carried out in two perspectives – group and individual based as follow:

For the group assessment (final report assessment), the total score is 40. The supervisor is entitled for 50% and another examiner for the other 50%.

Final report assessment is based on:

1. Evidence of research/planning
2. Evidence of effort and time involved
3. Understanding of the subject matter
4. Evidence of critical thinking
5. Project report completeness and consistency.
6. Difficulty and significance of work.

As for the overall assessment of each student, the total score is 60. The supervisor is entitled for 70% of the total score and the rest of the examiners have the remaining 30%. The assessments forms are in Annexure-II.

Each student assessment is based on the following criteria:

1. Commitment (attendance to project tutorials, meetings, and seminars).
2. Creativity and independent work.
3. Team work, cooperation with fellow students and the supervisor.
4. Clarity and professionalism of the oral presentation and oral examination questions.
5. Project research completeness and consistency.
6. Difficulty and significance of work.

Table-1: GP Assessment Details

| Assessment Details | Marks allotted |
|--|-----------------------|
| 1. GP Report Assessment (40%) | |
| 1.1. GP Supervisor (20%) | 20 |
| 1.2. Examiner (20%) | 20 |
| 2. GP Presentation Assessment (60%) | |
| 2.1. GP Supervisor (42 %) | 42 |
| 2.2. Examiner-1 (6%) | 6 |
| 2.3. Examiner-2 (6%) | 6 |
| 2.4. Examiner-3 (6%) | 6 |
| Total Marks | 100 |

4. Graduation Project Report

The project report must be between 24 and 45 pages, spiral bound with a transparent cover sheet. The report must be written in the following pattern:

4.1. GP Report Preliminaries

All reports must begin with the following preliminary pages. These pages are not paginated with the rest of the report, i.e., page 1 is the first page of the introduction. The preliminary pages are paginated using the lower case roman numerals, e.g., i, ii, iii, iv, v, etc. These pages include:

- Title page (no page number) including Name of the College, Department, Logo, Name of the project, students names, supervisor name, academic year
- Acknowledgements
- Abstract in English and in Arabic if possible

- Table of contents
- List of Figures
- List of Tables

[A sample of each is found in Annexure-I]

4.2. The body of the GP report shall contain:

- Report preliminaries (mentioned above)
- Introduction (background, definitions, literature review, goal of the study, objectives, and approach to the study).
- Methods (study design, participants, participant recruitment, instrument, pilot test, procedure, data management and analyses)
- Results (response rate, demographic characteristics of participants, descriptive analysis, inferential analysis)
- Discussion and conclusions (discussing of each study objective findings and comparing the findings with the findings of other studies, study limitations, implication of the study results, recommendation and future research, conclusions)
- References (Annexure-I)
- Appendices (figures, tables, questionnaires, coding key, invitation letters, etc.)

4.3. Report Formatting

- Paragraph

Use font size 12 point, double spaced, and “Times New Roman” as the font type. The color of the text must be black.

- Headings

| Heading Level | Example | Font Size and Style |
|--|-------------------------|-------------------------------|
| Title (centered) | Introduction | 18 point, bold and underlined |
| Main body 1 st level heading | 1 Health Care in Oman | 16 points, bold and |
| 2 nd level heading (main body) | 1.1 Pharmaceutical Care | 14 points, bold and |
| 3 rd level heading (main body) | 1.1.1 MOH hospitals | 14 points, bold |

4.4. Figures and Tables

Figures should be numbered and should have a caption which should always be positioned *under* the figures, in contrast to the caption belonging to a table, which should always appear *above* the table. The final sentence of a caption, be it for a table or a figure, should end with a period. Center the captions between the margins and set them in 9 point type. (Figure. 1 shows an example)

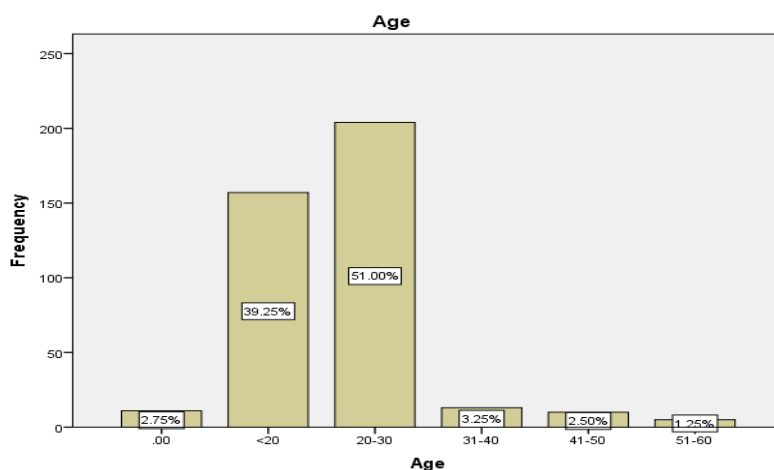


Figure 1. Bar chart of age categories.

5. Project Presentation

Project presentation is given by the group and all group members must participate. The timetable for presentations depends on the examining committee and should be carried out at the second week of the examination period. The presentation is a summary of the report and should last for about 30 minutes. The presentation should include:

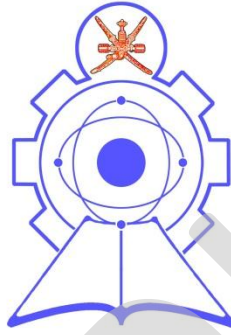
1. Aim or purpose of the study
2. Objectives
3. Approach to the study
4. Methods (design, implementation, analysis techniques, etc.)
5. Results
6. Discussion
7. Limitations
8. Recommendation and future research
9. Conclusions

After the presentation, each of the examination committee members will fill out an evaluation form (Annexure-II), which assesses the project as a whole and each student individually on their presentation skills and mastery of the project subject. However, only the supervisor and one of the examiners will evaluate the submitted report.

Annexure-I

**Sultanate of Oman
Ministry of Manpower**

**Higher Collage of Technology
Pharmacy Department**



Project Title Goes Here

Student Name 1 Student ID 1

Student Name 2 Student ID 2

Student Name 3 Student ID 3

Student Name 4 Student ID 4

Supervisor: Dr. First and Family Name

Graduation Project (PHAR6400)

Academic Year (20.../20...)

Report Submitted in Partial Fulfillment of the
Assistant Pharmacy Diploma Program

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CERTIFICATE

This is to certify that (**Student Name:** _____) (**ID:** _____) has successfully completed her/his “**Graduation Project**” entitled “ _____ ” under the direct supervision of Dr./Mrs/Mr _____ in the Pharmacy Department, Higher College of Technology as a partial fulfillment for the award of “**Assistant Pharmacy Diploma**”.

(Signature & Date)

Dr /Mr/ Mrs (Supervisor’s Name)

Lecturer in _____
Pharmacy Department
Higher College of Technology

(Signature & Date)

HoD’s Name

Head - Pharmacy Department
Higher College of Technology

ABSTRACT

Objective: The study purpose was to evaluate patients' satisfaction with pharmaceutical care services provided in the MOH hospitals.

Methods: A cross sectional hand-delivered survey was conducted with 400 randomly selected staff and students from the Higher College of Technology (HCT) in Muscat, Oman.

Results: The survey response rate was 100%. Participants were moderately satisfied whether with pharmaceutical care services provided in the MOH hospitals (56%), or with pharmacists' attitude (55.8%). A significant difference in patient satisfaction was found between females and males ($p = .023$), and males were found to be more satisfied than females. Also, patients with lower education levels were m

ore satisfied with pharmaceutical care services than those with higher levels of education ($p = .03$). Finally, the results showed that students were more satisfied with pharmaceutical care services than the staff ($p = .03$).

Conclusion: This is the first study to assess patients' satisfaction with pharmaceutical care services provided by pharmacists employed in the MOH hospitals. The provided services need to be improved and pharmacists have to change their attitude to comply with pharmaceutical care related practice standards. Due to time constraint and lengthy procedures to obtain approvals from the research department in the MOH, the study was conducted in the HCT and is considered as a pilot study for a study that will be conducted on a larger scale with real patients.

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REFERENCES

Article in Journal Paginated by Volume

Journals that are paginated by volume begin with page one in issue one, and continue numbering issue two where issue one ended, etc.

Aarts H, Dijksterhuis A. Habits as knowledge structures: automaticity in goal-directed behavior. *Journal of Personality and Social Psychology* 2000; 78(1): 53-63.

When authors' number exceeds 7:

Aaltonen SE, Laine NP, Volmer D, Gharat MS, Muceniece R, Vitola A, ...Bell S. Barriers to medication counseling for people with mental health disorders: a six country study. *Pharmacy Practice* 2010; 8(2): 122-31. Available at: <http://www.pharmacypractice.org/vol08/pdf/122-131.pdf> <Accessed December 10, 2012>.

Article in a Magazine

Henry WA. III. Making the grade in today's schools. *Time* 1990, April 9; 135: 28-31.

Article in a Newspaper

Unlike other periodicals, p. or pp. precedes page numbers for a newspaper reference in APA style. Single pages take p., e.g., p. B2; multiple pages take pp., e.g., pp. B2, B4 or pp. C1, C3-C4.

Schultz S. Calls made to strengthen state energy policies. *The Country Today* 2005, December 28; pp. 1A, 2A.

Letter to the Editor

Moller, G. Ripples versus rumbles [Letter to the editor]. *Scientific American* 2002, August; 287(2), 12.

Review

Baumeister RF. Exposing the self-knowledge myth [Review of the book *The self-knower: A hero under control*, by R. A. Wicklund & M. Eckert]. *Contemporary Psychology* 1993; 38, 466-467.

ANNEXURE-II

Higher College of Technology Pharmacy Department

Supervisor Evaluation Form (Phar-12.1)

Group Project and Individual Student Assessment

| |
|----------------------------------|
| Graduation Project Title: |
| Semester / Academic Year: |

| Student Name | Student ID# |
|--------------------|-------------|
| First Student-S1: | |
| Second Student-S2: | |
| Third Student-S3: | |
| Fourth Student-S4: | |

Group project and report assessment (40 points)

| | Criteria / Indicator | Score |
|---|---|-------|
| 1 | Project Significance | /5 |
| 2 | Documentation (Report) | /10 |
| 3 | Project Presentation | /5 |
| | Total Score (50% of the Final Score [40]) | /20 |

Assessment of the individual team members (60 points)

| | Criteria / Indicator | Score | | | |
|---|--|-------|-----|-----|-----|
| | | S1 | S2 | S3 | S4 |
| 1 | Attendance / Commitment | /7 | /7 | /7 | /7 |
| 2 | Contribution / Creativity / Independence | /7 | /7 | /7 | /7 |
| 3 | Team Work | /7 | /7 | /7 | /7 |
| 4 | Presentation / Communication Skills / Slides Quality | /7 | /7 | /7 | /7 |
| 5 | Student's Level of Understanding of the Project | /7 | /7 | /7 | /7 |
| 6 | Student's Level of Contribution to Oral Questions | /7 | /7 | /7 | /7 |
| | Total Score (70% Final Score [60]) | /42 | /42 | /42 | /42 |

| | | | | |
|--|-----------|-----------|-----------|-----------|
| Cumulative Score (40[20 + 20] + 60[42 + 18] = 100 points) | S1 | S2 | S3 | S4 |
| | | | | |

Supervisor Name: _____ **Supervisor Signature:** _____
Date: _____

Higher College of Technology Pharmacy Department

Examiner Evaluation Form (Phar-12.2)

Group Project and Individual Team Member Assessment

| |
|----------------------------------|
| Project Title: |
| Semester / Academic Year: |

| Student Name | Student ID# |
|--------------------|-------------|
| First Student-S1: | |
| Second Student-S2: | |
| Third Student-S3: | |
| Fourth Student-S4: | |

Group project and report assessment (40 points)

| | Criteria / Indicator | Score |
|---|---|-------|
| 1 | Project Significance | /5 |
| 2 | Documentation | /10 |
| 3 | Project Presentation | /5 |
| | Total Score (50% of the Final Score [40]) | /20 |

Assessment of the individual team members (60 points)

| | Criteria / Indicator | Score | | |
|---|--|-------|-----|-----|
| | | S1 | S2 | S3 |
| 1 | Presentation / Communication Skills / Slides Quality | /6 | /6 | /6 |
| 2 | Student's Level of Understanding of the Project | /6 | /6 | /6 |
| 3 | Student's Level of Contribution to Oral Questions | /6 | /6 | /6 |
| | Total Score (30% of the Final Score [60]) | /18 | /18 | /18 |

| Examiner Name & Signature | Advisor Signature | Date |
|---------------------------|-------------------|------|
| | | |

Higher College of Technology Pharmacy Department

Graduation Project – Attendance (Phar-12.3)

Student Name: _____ ID No. _____

Supervisor: _____ Semester/Academic year: _____

Graduation Project Title: _____

| Attendance Details | | | | | | | | | | | | | | | | | | | | | |
|---|--|--------|--|--------|--|--------|--|--------|--|--------|--|--------|--|--------|--|--------|--|--------|--|---------|--|
| | | Week-1 | | Week-2 | | Week-3 | | Week-4 | | Week-5 | | Week-6 | | Week-7 | | Week-8 | | Week-9 | | Week-10 | |
| Date | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| Each attendance = 0.5 marks; Total Attendance marks = 5 | | | | | | | | | | | | | | | | | | | | | |
| Marks scored = _____ | | | | | | | | | | | | | | | | | | | | | |