جامعة الملك سعود
كلية العلوم
قسم الجيولوجيا والجيوفيزياء

King Saud University
College of Sciences
Geology and Geophysics Department

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Form (O)

Course Specification

Geo 548: Advanced Paleoecology

Course Specification

Institution: **King Saud University**	
College/Department	**College of Science / Department of Geology and Geophysics**

A. Course Identification and General Information:

1. Course title and code: **Advanced Paleoecology (Geo 548)**
2. Credit hours **3 (2+0+1)**
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
M.Sc. program in Geology
4. Name of faculty member responsible for the course **Dr. Osama Elsayed Ahmed Attia**
5. Level/year at which this course is offered **M.Sc.**
6. Pre-requisites for this course (if any) **None**
1. Co-requisites for this course (if any) **None**
8. Location if not on main campus

B Objectives:

1. Summary of the main learning outcomes for students enrolled in the course.

- The basic environmental principles and Diversity.
- Different ecosystems.
- The direct evidences from preservation.
- Fossil assemblages.
- Evolution and the fossil record.
- Extinction and rates of evolution.
- Biostratigraphy.
- Geologic time units and geologic rock units.
- Correlation (qualitative and quantitative).
- Correlation on the basis of fossil content and facies changes.
- Determination of structural geology by using index fossils.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

- Electronic materials and computer based programs have been utilized to support the lecture course material.
- The course is dynamic in nature especially as what concerns the use of computer soft ware in the practical exercises. Now the students are trained to apply surfer and finite extent programs.
- The course material was posted on the internet that could be accessed by the students enrolled in the course only.

- The experimental studies were reviewed. As a result of introducing new equipment and the intention to minimize the paleoecology applications.

C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached).

1. Topics to be Covered:

Week #	Topic	# of weeks	Contact hours
1	Introduction in paleoecology and principal environments	1	3 (2+0+1)
2	Diversity and Homology	1	3 (2+0+1)
3	Marine ecosystem – Index of environments from the preservation	1	3 (2+0+1)
4	Paleoecology index (structural – sedimentary)	1	3 (2+0+1)
5	Determination of Geographical distribution and associations (reefs – substratum - fossils).	1	3 (2+0+1)
6	Microfacies and Taphonomy.	1	3 (2+0+1)
7	Rate of Evolution and fossil records.	1	3 (2+0+1)
8	Extinction (Phyletic – Mass mortal - Evolution and extinction modelling).	1	3 (2+0+1)
9	Comparison between paleontology and neontology.	1	3 (2+0+1)
10	Biostratigraphy (units – biozones – correlation – range and zones).	1	3 (2+0+1)
11	Fossil association (percentage - Index fossils – morphological characters)	1	3 (2+0+1)
12	Environmental models.	1	3 (2+0+1)
13	Correlation (qualitative and quantitative) and beds correlation.	1	3 (2+0+1)
14	Geologic Time Units and Geologic Rock Units .	1	3 (2+0+1)
15	Identify the geologic structures by using index fossils.	1	3 (2+0+1)

2. Course components (total contact hours per semester):

Lecture: **30**	Tutorial: -	Practical/Fieldwork/Internship: **15**	Other: -

3. Additional private study/learning hours expected for students per week. (This should be an average: for the semester not a specific requirement in each week)

2 – 3 hours/week for the homework and reports assignments.

4. Development of Learning Outcomes in Domains of Learning for each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop: The course provides the students with the basics of paleoecology science and ancient environments.
- A description of the teaching strategies to be used in the course to develop that knowledge or skill: Teaching strategy is taught by lectures, practical applications and field trips (if possible).
- The methods of student assessment to be used in the course as evaluate learning outcomes in the domain concerned: include duties, reports quizzes and exams.

a. Knowledge:

(i) Description of the knowledge to be acquired

- Identify the principles of paleoecology and their implications in the rest of Earth Sciences.
- Communicate with the latest information in this field, development and uses on the Internet.

(ii) Teaching strategies to be used to develop that knowledge

- Education through lectures using presentation software Powerpoint).
- Practical applications (Lab.) and field training (if possible).
- Search in modern references in this area (periodic reports).
- See the latest references in this field (see the latest books, articles and journals through the Internet).

(**iii) Methods of assessment of knowledge acquired**

- Continuous interaction through questions and answers during lectures and lab.
- Written and oral exams.
- Evaluation of periodic reports.

b. Cognitive Skills:

(i) Cognitive skills to be developed

- Students can apply the information gained in the study of the ancient environments.
- Students can interpret the paleoenvironmental conditions for any layer.
- Will be in the ability of the students identify environment deposition of layers.
- Students will have the ability to infer the ancient environment of any bed sequences.
- Development of students research skills using the Internet and information retrieval.

(ii) Teaching strategies to be used to develop these cognitive skills

- Strengthening lectures using Data show to view examples of a practical nature.
- To provide practical lessons with practical applications and their different usages.
- Activate the participation of students to discuss and put forward relevant topics and search for solutions.

(iii) Methods of assessment of students cognitive skills

- Include quizzes to put up some points solved requires concentration of thinking.
- Data collection and analysis using scientific methods.
- Explanations for the analyses results with focus on the personal knowledge of the student and his opinion

- Weekly duties and assignments.

c. Interpersonal Skills and Responsibility:

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- Commitment of students attends lectures and labs.
- Holds students responsibility for solving homework themselves and submit them on time.
- Students learn how to manage time in self-study of the decision.
- Practicing of students to work both in the collective and independent group.

(ii) Teaching strategies to be used to develop these skills and abilities

- Assigning individual students or group with duties seminars at regular intervals to be solved and delivered at specific times.
- Encourage students to formal directing public attention to the duties before they are delivered.
- The allocation of not less than 10% of the final grade with grades discount in case of delay in delivery.
- Encourage students to discussion during lectures and labs lessons with the allocation of not less than 5% of the final grade awarded on this review.

(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility

- Assessing student through periodic quizzes and duties.
- Assessing student through group or individual works periodically.
- Assessing student through attending lectures and labs.

d. Communication, Information Technology and Numerical Skills:

(i) Description of the skills to be developed in this domain.

- The ability to apply the basics of ancient environments using the computer.
- The ability to use software applications to write reports.
- The ability to use the Internet and information retrieval

(ii) Teaching strategies to be used to develop these skills

- Questions of quizzes duties and exams required the students' knowledge of ancient environments, their principles and types.
- Clear and manifest interpretation of practical applications.
- Commissioning duties and writing report.

(iii) Methods of assessment of students numerical and communication skills

- The grade sum of what the student has obtained in both quizzes, duties and exams.
- Evaluation of written reports and assignments.

e. Psychomotor Skills (if applicable):

(i) Description of the psychomotor skills to be developed and the level of performance required

- Field Trips.
- Demonstrate cross in the field.
- Prepare the students to practice in the field.
- Use the geological equipments in the field geology.
- How to collect the rock samples in the field.

(ii) Teaching strategies to be used to develop these skills

- Field work.
- Group work in the field.
- Cooperation with other group.
- Training project.

(iii) Methods of assessment of students psychomotor skills

- Results of the team work in the field.
- Presentation of the results from the field and discuss within all work groups.
- Submitting and presenting the work and research and focusing on the difficulties that may face them and trying to find the solutions.

5. Schedule of Assessment Tasks for Students During the Semester:

Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Class activates (quizzes and homework)	weekly	10%
2	Major exams I	٧	10%
3	Major exams II	14	10%
5	Lab activates	weekly	30%
4	Final exam	16	40%

D. Student Support**:**

Arrangements for availability of faculty for individual student consultations and academic advice. (include amount of time faculty are available each week)

- Direct supervision by the faculty member to the students during labs.
- Three office hours/week for faculty member by dedicated to the students scheduled to review and provide academic guidance.

E. Learning Resources

1- Required Arabic text book(s): None

2- Essential References:

- Dodd, J.R.,(1981): Paleoecology Concepts and applications.
- Krassilov, V.A., (2003): Terrestrial Paleoecology and global change.

3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List):

- All international scientific journals that specializes in researching ancient environments (if possible).
- All the scientific reports issued by bodies or relevant institutions (if possible).
- All scientific publications issued by scientific centres concerning ancient environments competent (if possible).
- All research included in any international conference respect ancient environments

(if possible).

4-.Electronic Materials, Web Sites etc:

http://www.geo.wvu.edu/~kammer/geol632.htm
http://quis.qub.ac.uk/archsoc
http://paleoecology.org/paleoroot/news/index.html

5- Other learning material such as computer-based programs/CD, professional standards/regulations:

Multi media associated with the text book and the relevant websites

F. Facilities Required:

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Lecture rooms, laboratories, etc.):

- Lecture hall equipped with smart board and Data show.
- Historical Geological Laboratory equipped with models and means of illustrative.

2. Computing resources:

Computer room containing at least 30 computer systems connected to the internet.

3. Other resources (specify e.g. If specific laboratory equipment is required, list requirements or attach list): None

G. Course Evaluation and Improvement Processes:

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- The distribution of questionnaires to the students at the end of the semester to evaluate the methods of teaching the course.
- Identify dialogue and discussion sessions with students enrolled scheduled for feedback.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- Peer consultation on teaching
- Departmental council discussions
- Discussions within the group of faculty teaching the course.

3. Processes for Improvement of Teaching

- Taking into account the guidance and recommendations of the Commission of the studying plans and schedules.
- The use of the graduates' opinion to identify the applications of the course in the area of their business.

- Workshops methodology to activate and update the information in this course.
- Providing the necessary hardware with interest periodic maintenance to maintain its efficiency.
- The definition of section performance management faculty member based on direct observation.

4. **Processes for Verifying Standards of Student Achievement** (e.g. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution)
    - Aspiration Curriculum Committee on samples of reports, duties and practical applications and tests students to determine the overall level and quality of the work and remarkable progress.
    - Comparisons are made between the results of the assessment with distinguished universities to evaluate the course material and the level of the students and also includes comparisons to appropriate laboratory facilities and equipment used.
    - The application of the principle of collective correction to review papers answers that have been corrected by the faculty member.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
    - Comparison scheduled with his counterpart, who teaches at other distinguished universities.
    - The work of a self-assessment every two years on the results of this assessment are used to improve the educational process.
    - Review Course Description periodically by a committee studying plans.
    - Take advantage of the statistical results to assess due to the improvement and development decision.