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|----------------------|-----------------------------|
| Course Title: | Statistics |
| Course Code: | MATH10301 |
| Program: | B. Sc in |
| Department: | Department of |
| College: | Faculty of computer Science |
| Institution: | Al Baha University |

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A. Course Identification

| |
|--|
| 1. Credit hours: 3 hours (lecture) |
| 2. Course type |
| a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> |
| b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/> |
| 3. Level/year at which this course is offered: 3 th Level: / 2 th year: |
| 4. Pre-requisites for this course (if any): Calculus (1) |
| 5. Co-requisites for this course (if any): Non |

6. Mode of Instruction (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|----|-----------------------|---------------|------------|
| 1 | Traditional classroom | √ | 80% |
| 2 | Blended | √ | 10% |
| 3 | E-learning | √ | 5% |
| 4 | Correspondence | | |
| 5 | Other | | 5% |

7. Actual Learning Hours (based on academic semester)

| No | Activity | Learning Hours |
|------------------------------|---------------------------------|----------------|
| Contact Hours | | |
| 1 | Lecture | 33 |
| 2 | Laboratory/Studio | |
| 3 | Tutorial | |
| 4 | Others (specify) | |
| | Total | 33 |
| Other Learning Hours* | | |
| 1 | Study | |
| 2 | Assignments | |
| 3 | Library | |
| 4 | Projects/Research Essays/Theses | ----- |
| 5 | Others(specify) | |
| | Total | 33 |

*The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

This course introduces the basic concepts of statistical analysis, with a focus on both univariate (single-variable) and bivariate (two-variable) data. The course starts with an introduction to statistics terms and then moves on to organization and display of data. Analysis of univariate data by way of measures of central tendency (such as the mean or average), dispersion (such as the variance), and asymmetry ("skewness") is presented next, followed by an introduction to probability theory

2. Course Main Objective

- Learn statistics terms
- Learn the organization and display of data
- Learn measures of central tendency, dispersion and skewness
- Learn basic concepts of statistical analysis that use univariate (single-variable) and vicariate (two-variable) data
- Learn the basics of probability theory

3. Course Learning Outcomes

| CLOs | | Aligned PLOs |
|---|--|--------------|
| Knowledge and Understanding: | | |
| Define the related basic scientific facts, concepts, principles and techniques in statistics and probability theory | | K1 |
| Recognize the relevant theories and their applications in basic mathematics. | | K2 |
| Recall Condition Correlation and Regression, probability use Bayes Theorem | | K3 |
| Skills | | |
| Apply statistical tools for simple data analysis, scientific models and tools effectively | | S1 |
| Discuss the results of statistical measures | | S1 |
| Evaluate probability of events using different rules | | S3 |
| Solve problems using a range of formats and approaches in basic science | | S3 |
| Present the data graphically | | S4 |
| Values | | |
| Use the internet to write reports about basic statistical principles | | V1 |
| Work effectively in groups and exercise leadership when appropriate. | | V3 |
| Present information clearly in both written and oral form. | | V3 |
| Communicates effectively in oral and written form in educational situations related to the subjects of the course. | | V4 |

C. Course Content

| No | List of Topics | Contact Hours |
|--------------|---|---------------|
| 1 | Definition and general view of statistics, types of data and data collections, frequency distribution, Graphs | 3 |
| 2 | Measures of central tendency (Mean, Median, Mode, Quartiles, Deciles, Percentiles) of the simple data and the frequency distribution | 6 |
| 3 | Measures of dispersion (The Range – The Variance and the standard deviation - Coefficient of variation, standard error) of the simple data and the frequency distribution | 6 |
| 4 | Moments and Measure of Skewness and Kurtosis | 3 |
| 5 | Correlation measures (Person, Spearman) | 3 |
| 6 | Modeling linear trends, Evaluating Simple Linear regression | 6 |
| 7 | Non Linear correlation and regression | 6 |
| Total | | 33 |

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|------------|---|---|--|
| 1.0 | Knowledge and Understanding: | | |
| 1.1 | Define the related basic scientific facts, concepts, principles and techniques in statistics and probability theory | <ul style="list-style-type: none"> ● Lectures ● Debate and discussion ● Assignments (Co-operative & Individual assignments). Working in small groups | <ul style="list-style-type: none"> ● Continuous evaluation through interaction, and presentation of summaries and reports during lectures. ● Evaluation of assignments. ● Quiz1 & Quiz2. ● Midterm exam. Final written exams. |
| 1.2 | Recognize the relevant theories and their applications in basic mathematics. | <ul style="list-style-type: none"> ● Lectures ● PowerPoint presentation ● Debate and discussion. ● Assignments (Co-operative & Individual assignments). ● Cooperative Learning ● Working in small groups Individual & group research | <ul style="list-style-type: none"> ● Continuous evaluation through interaction, and presentation of summaries and reports during lectures. ● Evaluation of assignments. ● Quiz1 & Quiz2. ● Midterm exam. Final written exam. |
| 1.3 | Recall Condition Correlation and Regression, probability use Bayes Theorem | <ul style="list-style-type: none"> ● Lectures ● PowerPoint presentation ● Debate and discussion. ● Assignments (Co-operative & Individual assignments). ● Cooperative Learning ● Working in small groups ● Individual & group research | <ul style="list-style-type: none"> ● Continuous evaluation through interaction, and presentation of summaries and reports during lectures. ● Evaluation of assignments. ● Quiz1 & Quiz2. ● Midterm exam. ● Final written exam |
| 2.0 | Skills | | |
| 2.1 | Apply statistical tools for simple data analysis, scientific models and tools effectively | <ul style="list-style-type: none"> ● Lectures ● Debate and discussion. ● Assignments (Co-operative & Individual assignments). | <ul style="list-style-type: none"> ● Continuous evaluation through interaction, and presentation of summaries and reports during lectures. |

| | | | |
|------------|---|---|--|
| | | <ul style="list-style-type: none"> • Cooperative Learning • Working in small groups Individual & group research | <ul style="list-style-type: none"> • Quiz1 & Quiz2. • Midterm exam. • Final written exam. |
| 2.2 | Solve problems using a range of formats and approaches in basic science | <ul style="list-style-type: none"> • Lectures • Debate and discussion. • Assignments (Co-operative & Individual assignments). • Cooperative Learning • Working in small groups Individual & group research | <ul style="list-style-type: none"> • Continuous evaluation through interaction, and presentation of summaries and reports during lectures. • Evaluation of assignments. • Quiz1 & Quiz2. • Midterm exam. Final written exam. |
| 2.3 | Evaluate probability of events using different rules | <ul style="list-style-type: none"> • Lectures • PowerPoint presentation • Debate and discussion. • Assignments (Co-operative & Individual assignments). • Cooperative Learning • Working in small groups Individual & group research | <ul style="list-style-type: none"> • Continuous evaluation through interaction, and presentation of summaries and reports during lectures. • Evaluation of assignments. • Quiz1 & Quiz2. • Midterm exam. Final written exams. |
| 3.0 | Values | | |
| 3.1 | Use the internet to write reports about basic statistical principles | Team work- Assignments-student presentation-reporting- Scientific media Co-operative & Individual assignments. Cooperative Learning. | <ul style="list-style-type: none"> • Evaluation of individual & group works. Observation Card |
| 3.2 | Work effectively in groups and exercise leadership when appropriate. | <ul style="list-style-type: none"> • Working in small groups Group research | Evaluation of individual & group works. |
| 3.3 | Present information clearly in both written and oral form. | <ul style="list-style-type: none"> • small groups and the distribution of roles. • PowerPoint presentation. Writing reports | Oral discussion Report evaluation |

2. Assessment Tasks for Students

| # | Assessment task* | Week Due | Percentage of Total Assessment Score |
|---|--------------------------------------|---------------------------|--------------------------------------|
| 1 | Homework & Classwork Assignments | During the Semester | 10% |
| 2 | Quiz 1 | The 4th Week | 10% |
| 3 | Mid-Term Exam | The 8th Week | 20% |
| 4 | Quiz 2 | The 10th Week | 10% |
| 5 | The Final Examination (Written Test) | The 11 th Week | 50% |
| | Total | | 100 |

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- Follow-up by the head of the department.
- Define 8 office hours per week for each member of the faculty who resides in his office.
- Define 2 hours weekly as Academic guidance for each faculty member for guiding a group of students academically.
- Give guidance so encouraging in assessing the performance of a teacher.
- Creating the means to make the teacher benefit of his time during his stay in office.
- Non-scientific services to assist the teacher to attend office hours.

F. Learning Resources and Facilities

1. Learning Resources

| | |
|---------------------------------------|--|
| Required Textbooks | <p>1-Bluman, A. G., "Elementary Statistics a Step by Step Approach", 6th Edition, McGraw-Hill, (2006).</p> <p>● 2- Larson, R. C. and Farber, E. , " Elementary Statistics: Picturing the World", 3rd Edition, Prentice Hall, (2006).</p> |
| Essential References Materials | <p>Lecture</p> <ul style="list-style-type: none"> ● Larson & Farber, "Elementary Statistics: Picturing the World", 3rd Edition (2006) |
| Electronic Materials | <ul style="list-style-type: none"> ● https://www.youtube.com/watch?v=fpxaZ9Pv2HM&list=PL9fwy3NUQKwZKOpj354PRgwYPWWgxchnI ● https://en.wikipedia.org/wiki/Abstract_algebra ● https://www.youtube.com/watch?v=4gVA64K1AwY&list=PLp5QO1iuiUkN7KGvBPXUX5gE04fiw5G18 ● https://www.extension.harvard.edu/open-learning-initiative/abstract-algebra |
| Other Learning Materials | <ul style="list-style-type: none"> ● Microsoft Excel 2007 – 2010 ● Minitab <p>SPSS.</p> |

2. Facilities Required

| Item | Resources |
|--|---|
| <p>Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)</p> | Classrooms equipped with smart board and display screen for (40) students |
| <p>Technology Resources (AV, data show, Smart Board, software, etc.)</p> | Provision of computers for students training to be used in research on scientific topics that serve the course. |
| <p>Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)</p> | ----- |

G. Course Quality Evaluation

| Evaluation Areas/Issues | Evaluators | Evaluation Methods |
|---|---|--------------------|
| Extent of achievement of course learning outcomes | The teacher using an excel program that measure CLO's | Direct |

| | | |
|-------------------------------|------------------------------|---------------------------|
| Quality of learning resources | Students and Program Leaders | Direct |
| Effectiveness of teaching | Students | Indirect (Questionnaires) |

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods(Direct, Indirect)

H. Specification Approval Data

| | |
|---------------------|----|
| Council / Committee | 1- |
| Reference No. | |
| Date | |