Mansoura University
Faculty of Nursing
Community Health Nursing Dep.,
2021/2022

Biostatistics course work plan
For the fourth level of the first semester

Work procedures before the start of the school year

1. Number of fourth-level students: 300 students/first semester
2. The students of the band are divided into 4 large student groups (A, B, C, D, E, F), each group has 40 students over the course of one semester.
3. The student groups are divided into 3 days, each day two groups into 3 groups
4. The number of 2 hours per week is determined to study the course in the faculty
5. The study schedule for my work and theory course has been prepared

Work procedures during the practical training period

1. Distribute the students into working groups.
2. Theoretical lectures are uploaded through the university's educational platform
3. The practical parts are studied by holding interactive sessions online, with these sessions being uploaded to the university's educational platform.
4. The attendance and absence of students are limited to make a plan for defaulting students whose absence exceeds 25%.
5. A periodic evaluation of the students is done on the practical parts that have been studied by the faculty member and the assistant body responsible for the group.
6. Make a plan for outstanding students.
   - Preparing for exams
   - Semester, practical, oral and theoretical exams.

- Making advertisements for the exam

Post-semester exam procedures

- Correct and review the semester exam.
- Monitoring the semester exam scores.
- Monitoring the grades of the year's work.
- Review student statistics

Post practical exam procedures-:

- Correction and revision of the practical and theoretical exam
- Monitoring the practical and theoretical exam scores

Biostatistics session plan 2021/ 2022 (First term)

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W1: 1 hour	Introduction to Biostatistics and collecting biostatistics data **(Theoretical)**	**Objectives:** **By the end of this lecture, the students will be able to:** ▪ Define biostatistics ▪ Enumerate purpose of biostatistics ▪ List classes of biostatistics ▪ Identify different methods of collecting data ▪ Choose appropriate method for data collection ▪ Mention difference between statistics & biostatistics ▪ Define population &sample ▪ Define variables & data ▪ Enumerate major categories of variables ▪ Differentiate between different types of variables, questions and level of measurements ▪ Know the component of the questionnaire	▪ Online recorded lecture ▪ Electronic book
W1:1 hour	**Online training:** Questionnaire development and data collection **(Practical)**	**Objectives:** **By the end of this session, the students will be able to:** ▪ Develop the format and layout of a questionnaire with correct list of questions and units of measurement. ▪ Collect data from participant or respondent. **Methods and activities** ▪ The tutor will present different types of variables ▪ The tutor will present different types of questions ▪ The tutor will present example for developing the questionnaire as a reference for the students ▪ The tutor will ask the students to collect data from participant or respondent ▪ The tutor will inform students with the assignments and evaluation part for the next session	▪ Online recorded session

<u>Assignment (1)</u>		A. Questionnaire development B. Data collection from 10 participant or respondent ***The deadline time of the assignments before the meeting time (according to schedule)***	
W1: 2 hours	**Online tutorial meeting**: Introduction to Biostatistics and collecting biostatistics data	**Objectives:** **By the end of this meeting, the students will:** ▪ Discuss any problems and conflicts in the recorded theoretical lecture/ clinical section. ▪ Obtain feedback regarding the developed questionnaire **Methods and activities** ▪ The tutor will take students absenteeism in the first 15 minutes of the meeting ▪ The tutor will discuss any misunderstanding points in the online theoretical/ clinical part ▪ The tutor will discuss each student in its sheet ▪ The tutor will ask each student on his sheet about types of variables and types of questions ▪ The tutor will inform students with the time for sending the final modifications for evaluation. ▪ The tutor will detect the deadline time to submit the final questionnaire as PDF.	▪ Brain storming ▪ Online group discussion

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W 2: 1 hour	Handling of biostatistics data (Data coding and entry) **(Theoretical/ practical)**	**Objectives:** **By the end of this session, the students will be able to:** ▪ Identify SPSS program ▪ Code the different types of variables. ▪ Determine possible modes of administration for the questionnaire. ▪ Construct data file by 'defining' the variables using SPSS Program. ▪ Enter the data—that is, the values obtained from each participant or respondent for each variable **Methods and activities** ▪ The tutor will clarify methods of coding data ▪ The tutor will apply coding for a sample of different questions of the questionnaire ▪ The tutor will enter data for the previous questionnaire as an example ▪ The tutor will inform students with the assignments and evaluation part for the next session	▪ Online recorded session ▪ Electronic book
W 2: 2 hours	**Laboratory training:** Handling of biostatistics data (Data coding and entry)	**Objectives:** **By the end of this session, the students will be able to:** ▪ Discuss any problems and conflicts in the recorded lecture/ session ▪ Code data manually on SPSS ▪ Enter data manually on SPSS **Methods and activities** ▪ The tutor will code and enter data for a sample of different questions of the questionnaire ▪ The tutor will ask the students to redemonstrate data coding and entry manually on SPSS. ▪ The tutor will inform students with the assignments and evaluation part for the next session	▪ Demonstration ▪ Group discussion
<u>Assignment (2)</u>		**A.** Coding data manually and on SPSS according to questionnaire assigned for each student.	

	B. Entering data on SPSS according to questionnaire assigned for each student ***The deadline time of the assignments before the meeting time (according to schedule)***

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W3: 1hour	Handling of biostatistics data (Data clearing and anlysis) **(Theoretical/ practical)**	**Objectives:** **By the end of this session, the students will be able to:** • Check the error or missing in the data file. ▪ Correct the error or missing in the data file. ▪ Use SPSS Program for descriptive analysis of data. ▪ Obtain descriptive statistics for categorical variables using frequencies. ▪ Obtain descriptive statistics for continuous variables using descriptive. **Methods and activities** ▪ The tutor will clarify methods for detecting faulty or missing cell in data ▪ The tutor will explain the correct action for filling missing data ▪ The tutor will explain using SPSS Program for descriptive analysis of data for categorical variables using frequencies and for continuous variables ▪ The tutor will inform students with the assignments and evaluation part for the next session	▪ Online recorded session ▪ Case study ▪ Electronic book
<u>Assignment (3)</u>		**A.** Data clearing **B.** Correcting missed and faulty data of his SPSS file **C.** Descriptive analysis of data for categorical variables using frequencies and for continuous variables using SPSS Program ***The deadline time of the assignments before the meeting time (according to schedule)***	

W3:2 hours	**Laboratory training:** Handling of biostatistics data (Data clearing and anlysis)	**Objectives:** **By the end of this session, the students will be able to:** ▪ Discuss any problems and conflicts in the recorded lecture/ session ▪ Check the error or missing in the data file. ▪ Correct the error or missing in the data file. ▪ Use SPSS Program for descriptive analysis of data. ▪ Obtain descriptive statistics for categorical variables using frequencies. ▪ Obtain descriptive statistics for continuous variables using descriptive measures. **Methods and activities** ▪ The tutor will present a questionnaire with missing and faulty data for students as an application for data clearing ▪ The tutor will ask the students to redemonstrate steps/ methods of data clearing of data file. ▪ The tutor will demonstrate descriptive analysis of data for categorical variables using frequencies and for continuous variables using descriptive measures using SPSS Program ▪ The tutor will ask the students to redemonstrate descriptive analysis of data for categorical variables using frequencies and for continuous variables using descriptive measures using SPSS Program ▪ The tutor will inform students with the assignments and evaluation part for the next session	▪ Demonstration ▪ Group discussion

Week/ Time	Type of activity	Objectives & Activities	Teaching and Learning & Materials
W4: 1 hour	Presentation of biostatistics data (Tabulation and graphical presentation) **(Theoretical)**	**Objectives:** **By the end of this lecture, the students will be able to:** ▪ Mention the different methods of data presentation ▪ Select the appropriate methods of data presentation according to type of variable. ▪ Enumerate principles of constructing tables ▪ Identify types of graphs suitable to variables types ▪ Mention principles of graphs	▪ Online recorded lecture ▪ Electronic book
W4: 1 hour	**Online training:** Presentation of biostatistics data (Tabulation and graphical presentation) (**Practical**)	**Objectives:** **By the end of this session, the students will be able to:** ▪ Use graphs and tables to describe and explore the data ▪ Edit a graph or chart to better suit needs. ▪ Import charts/graphs into Word documents ▪ Set up tabulations effectively into Word documents. ▪ Draw graphs/tables manually according to type of variable.Present case study as an example for extracting data on manually table or graph **Methods and activities** ▪ The tutor will present methods for performing frequency tables from the SPSS ▪ The tutor will apply different types of graphs on qualitative and quantitative variables ▪ The tutor will give example for developing table for presenting output on word program ▪ The tutor will present case study for guide students to extract data and developing table manually ▪ The tutor will give example for	Online recorded session

		drawing graphs manually ▪ The tutor will inform students with the assignments and evaluation part for the next session	
W4: 2 hours	**Laboratory training:** Presentation of biostatistics data (Tabulation and graphical presentation)	**Objectives:** **By the end of this session, the students will be able to:** ▪ Discuss any problems and conflicts in the recorded lecture/ session ▪ Use graphs and tables to describe and explore the data ▪ Edit a graph or chart to better suit needs. ▪ Import charts/graphs into Word documents ▪ Set up tabulations effectively into Word documents. ▪ Draw graphs/tables manually according to type of variable. ▪ Present case study as an example for extracting data on manual table or graph ▪ Document data scientifically **Methods and activities** ▪ The tutor will draw and edit graph using SPSS program. ▪ The tutor will instruct students to apply graph on qualitative and quantitative variables ▪ The tutor will instruct students to perform frequency tables on SPSS ▪ The tutor will present case study for students to extract data manually on the appropriate table and graph. ▪ The tutor will inform students with the assignments and evaluation part for the next session	▪ Group discussion ▪ Case studies ▪ Demonstration
<u>Assignment (4)</u>		**A.** Frequency tables for each student on his SPSS file **B.** Drawing tables on word program related to his questitionnaire **C.** Use different graph types with the suitable variable types related to his questitionnaire **D.** Drawing table/graph manually according to given case study	

	The deadline time of the assignments before the meeting time (according to schedule)

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W 5: 1 hour	Presentation of biostatistics data (Mathematical presentation: (Measures of central tendency and Measures of dispersion) **(Theoretical)**	**Objectives:** **By the end of this lecture, the students will be able to:** ▪ Define central tendency ▪ Define mean, mode, and median ▪ Enumerate advantages and disadvantage of each measure ▪ Calculate measures of central tendency by using the appropriate equations ▪ Identify measures of dispersion ▪ Define range, variance, standard deviation, and coefficient variance ▪ Enumerate advantages and disadvantage of each measure ▪ Calculate measures of dispersion by using the appropriate equations ▪ Document data scientifically	▪ Online recorded lecture ▪ Electronic book ▪ Case study
W5: 1 hour	**Online training:** Presentation of biostatistics data (Mathematical presentation: (Measures of central tendency and Measures of dispersion) **(Practical)**	**Objectives:** **By the end of this session, the students will be able to:** ▪ Discuss any problems and conflicts in the recorded theoretical lecture and clinical section ▪ Apply measures of central tendency on SPSS ▪ Calculate measures of central tendency by using the appropriate equations ▪ Apply measures of dispersion on SPSS ▪ Calculate measures of dispersion by using the appropriate equations **Methods and activities:** ▪ The tutor will present steps for applying measures of central tendency on SPSS ▪ The tutor will clarify case study for calculating measures of central tendency by using the appropriate equations ▪ The tutor will present steps for applying measures of dispersion on SPSS	• Online recorded session

		▪ The tutor will clarify with case study for calculating measures of dispersion by using the appropriate equations	
<u>Assignment (5)</u>		A. Application of measures of central tendency on SPSS ➢ Mean, ➢ Mode, and ➢ Median B. Calculation of measures of central tendency by using the appropriate equations ➢ Mean, ➢ Mode, and ➢ Median A. Apply measures of dispersion on SPSS ➢ Range, ➢ Variance, ➢ Standard deviation, and ➢ Coefficient variance B. Calculate measures of dispersion by using the appropriate equations ➢ Range, ➢ Variance, ➢ Standard deviation, and ➢ Coefficient variance ***The deadline time of the assignments before the meeting time (according to schedule)***	
W5: 2 hours	**Online tutorial meeting:** Presentation of biostatistics data (Mathematical presentation: (Measures of central tendency and Measures of dispersion)	**Objectives:** **By the end of this meeting, the students will:** ▪ Discuss any problems and conflicts in the recorded theoretical lecture and clinical section ▪ Apply measures of central tendency on SPSS ▪ Calculate measures of central tendency by using the appropriate equations ▪ Apply measures of dispersion on SPSS ▪ Calculate measures of dispersion by using the appropriate equations **Methods and activities:** ▪ The tutor will take students absenteeism in the first 15 minutes of the meeting ▪ The tutor instruct each students to apply measures of central tendency and dispersion on his questionnaire	▪ Brain storming ▪ Group discussion ▪ Case study ▪ Demonstration

		▪ The tutor will present different case studies for students as application for calculating measures of central tendency ▪ The tutor will detect the deadline time for submitting the assignment as PDF	

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W6: 30 Minutes	**Midterm exam**		

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W7: 1 hour	Inferential statistics (Chi-square test) **(Theoretical)**	**Objectives:** **By the end of this lecture, the students will be able to:** **Aim of inferential hypothesis** ▪ Define hypothesis and level of significance ▪ Differentiate between null and alternative hypothesis ▪ Describe the concept of "Hypothesis Testing" ▪ Define chi-square ▪ Identify uses and application of Chi-square test ▪ Mention principles of Chi-square ▪ Interpret the significance of chi-square test χ^2 test.	▪ Online recorded lecture ▪ Electronic book
W7: 1 hour	**Online training:** Inferential statistics (Chi-square test) **(Prcatical)**	**Objectives:** **By the end of this session, the students will be able to:** ▪ Test hypothesis using chi-square test (χ^2) test **Methods and activities** • The tutor will check principles of Chi-square test • The tutor will apply Chi- square test on the appropriate data and interpret the result • The tutor will inform students with the assignments and evaluation part for the next session	▪ Online recorded session
Assignment (6)		**A.** Application of Chi-Square test on the appropriate data of the questionnaire **B.** Interpretation of the Chi-Square test result ***The deadline time of the assignments before the meeting time (according to schedule)***	
W7: 2 hours	Laboratory training: Inferential statistics (Chi-square test)	**Objectives:** **By the end of this session, the students will be able to:** ▪ Discuss any problems and conflicts in the recorded lecture and clinical section ▪ Apply Chi-square test on SPSS ▪ Interpret the Chi-square test result	▪ Group discussion ▪ Case studies ▪ Demonstration

		▪ Document data scientifically **Methods and activities** ▪ The tutor will apply chi-square test on the appropriate data ▪ The tutor will instruct students to apply chi-square test on the appropriate data ▪ The tutor will present output of different case studies paired T-test and instruct students to interpret these results	

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W8: 1 hour	Inferential statistics (One sample t-test and Paired t-test) **(Theoretical)**	**Objectives:** **By the end of this lecture, the students will be able to:** • Define t-test • Mention principles of applying t-test • State types of t-test • Identify uses and application of One sample t-test and Paired t-test • Select appropriate statistical test to test hypothesis according to the type of variable. • Differentiate between types of t-test	▪ Online recorded lecture ▪ Electronic book
W8: 1 hour	**Online training:** Inferential statistics (One sample t-test and Paired t-test) **(Practical)**	**Objectives:** **By the end of this session, the students will be able to:** • Apply test of normality • Test hypothesis using one sample & paired t-test **Methods and activities** • The tutor will check principles of applying test • Apply test of normality of data • Tutor will apply one sample t-test on SPSS • Tutor will interpret result of the test • Tutor will apply paired t-test on SPSS • Tutor will interpret result of the test • The tutor will inform students with the assignments and evaluation part for the next session	▪ Online recorded session ▪ Case study
<u>Assignment (7)</u>		**A.** Application of test of normality on the appropriate data of the questionnaire **B.** Interpretation of test of normality result **C.** Application of One sample t-test on the appropriate data of the questionnaire **D.** Interpretation of the One sample t-test result ***The deadline time of the assignments before the meeting time (according to schedule)***	
W8: 2	Laboratory	**Objectives:**	▪ Group

hours	training: Inferential statistics (One sample t-test and Paired t-test)	**By the end of this session, the students will be able to:** ▪ Discuss any problems and conflicts in the recorded theoretical lecture and clinical section ▪ Apply one sample & paired t-test on the appropriate data ▪ Document data scientifically **Methods and activities** ▪ The tutor will apply one sample and paired T-test on the appropriate data ▪ The tutor will instruct students to apply one sample and paired T-test on the appropriate data and interpret the result ▪ The tutor will present output of different case studies paired T-test and instruct students to interpret these results	discussion ▪ Case studies ▪ Demonstration

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W9: 1 hour	Inferential statistics (independent t-test& one-way ANOVA): **(Theoretical)**	**Objectives:** **By the end of this lecture, the students will be able to:** ▪ Define independent t-test ▪ Mention principles of independent t-test ▪ Define ANOVA test ▪ Mention principles of ANOVA test ▪ Identify uses and application of independent t-test& one-way ANOVA ▪ Select appropriate statistical test to test hypothesis according to the type of variable. ▪ Differentiate between different inferential statistical tests	▪ Online recorded lecture ▪ Electronic book
W9: 1hour	**Online training:** Inferential statistics (independent t-test& one-way ANOVA): **(Practical)**	**Objectives:** **By the end of this session, the students will be able to:** ▪ Check principles of independent t-test ▪ Apply independent t-test ▪ Check principles of one-way ANOVA ▪ Apply one-way ANOVA **Methods and activities** ▪ Tutor will check principles of applying independent t-test ▪ Tutor will apply independent t-test on SPSS ▪ Tutor will check principles of applying one- way ANOVA ▪ Tutor will apply one-way ANOVA	▪ Online recorded session ▪ Case study
W9: 2 hours	Laboratory training of Inferential statistics (independent t-test& one-way ANOVA):	**Objectives:** **By the end of this session, the students will be able to:** ▪ Discuss any problems and conflicts in the recorded theoretical lecture and clinical section ▪ Apply independent t-test& one-way ANOVA on the appropriate data ▪ Document data scientifically **Methods and activities**	▪ Group discussion ▪ Case studies ▪ Demonstration

		▪ The tutor will apply apply independent t-test& one-way ANOVA on the appropriate data ▪ The tutor will instruct students to apply independent t-test& one-way ANOVA on the appropriate data and interpret the result ▪ The tutor will present output of different case studies of independent t-test& one-way ANOVA and instruct students to interpret these results	

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W10: 1 hour	Correlation coefficient **(Theoretical)**	**Objectives:** **By the end of this lecture, the students will be able to:** ▪ Define Pearson's correlation ▪ State the uses of Pearson's correlation ▪ Mention the types of Pearson's correlation ▪ State hypotheses of Pearson's correlation ▪ Identify assumption of Pearson's correlation	▪ Online recorded lecture ▪ Electronic book
W10: 1 hour	Laboratory training of (Pearson's correlation) **(Practical)**	**Objectives:** **By the end of this session, the students will be able to:** ▪ Discuss any problems and conflicts in the recorded theoretical lecture and clinical section ▪ Apply Pearson's correlation on the appropriate data ▪ Document data scientifically **Methods and activities** ▪ The tutor will apply Pearson's correlation on the appropriate data ▪ The tutor will instruct students to apply Pearson's correlation on the appropriate data and interpret the result ▪ The tutor will present output of different case studies of Pearson's correlation and instruct students to interpret these results	▪ Group discussion ▪ Case studies ▪ Demonstration

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W11: 1 hour	Sampling size **(Theoretical)**	**Objectives:** **By the end of this lecture, the students will be able to:** ▪ Identify the sampling types and sampling techniques ▪ Calculate the sample size according to the available data and study design	▪ Online recorded lecture ▪ Electronic book

Week/ Time	Content topic	Objectives & Activities	Teaching and Learning & Materials
W12: 1 hour	Method of recording and reporting and documentation techniques **(Theoretical)**	**Objectives:** **By the end of this lecture, the students will be able to:** ▪ Define recording, reporting and documentation ▪ Mention the different methods of data documentation ▪ List guidelines on statistical reporting	▪ Electronic book

Course Coordinator **Course Reviewer**

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