

# SISR 621 (4814) Biostatistics in Biomedicine

(Code: 4814, 1<sup>st</sup>~2<sup>nd</sup> year, 2 units)

(Course ID: GS-c4814-L)

## 1. Instructors

| Name                 | Position  | Department  | Contact Information          |
|----------------------|---|---|------------------------------|
| Chutwichai Tovikkai  | Chief Instructor/<br>Associate Professor<br>Dr. | Division of General Surgery,<br>Department of Surgery | chutwichai.tov@mahidol.ac.th |
| Varut Lohsiriwat     | Professor<br>Dr.                                | Division of General Surgery,<br>Department of Surgery | Varut.Loh@mahidol.ac.th      |
| Asada Methasate      | Associate Professor<br>Dr.                      | Division of General Surgery,<br>Department of Surgery | asada.met@mahidol.ac.th      |
| Cherdsak Iramaneerat | Associate Professor<br>Dr.                      | Division of General Surgery,<br>Department of Surgery | Cherdsak.ira@mahidol.ac.th   |
| Chulaluk Komoltri    | Assistant Professor                             | Division of Research centre                           | Chulaluk.kom@mahidol.ac.th   |

## 2. Classroom/Lab Lecture Location

Lecture: Udomposakrisna lecture room, 12<sup>th</sup> floor Syamindra Building, Siriraj Hospital

Computer lab: Computer lab, 6<sup>th</sup> floor Srisawarinthira Building, Siriraj Hospital  
Zoom Cloud Meeting System

## 3. Course Purpose and Outline

The objectives are to provide students with an introduction to:

- basic knowledge of statistics, including essential statistical tests, basic descriptive and analytic statistics
- applying appropriate statistics to research questions
- the roles of database, spreadsheet and statistical software programs in analyzing clinical research data

- using statistical software programs to input, clean, manage, describe and analyze clinical research data
- applying these skills in analyzing students' own research project

#### 4. Course objectives

This course offers a general overview of biostatistics for surgeon researchers, including basic knowledge of statistics, how to use database, spreadsheet and statistical software programs. Students will learn about hypothesis, essential statistical tests, basic descriptive and analytic statistics. The course will provide an introduction to the use of commonly used statistical software programs.

#### 5. Format

Lecture and computer labs.

#### 6. Course Details

Course timetable

Date: to be announced.

| N<br>O | Date              | Time            | Topic/Details   | Instructors                                    |
|--------|-------------------|-----------------|---|--|
| 1      | 12<br>Jan<br>2021 | 14.00-<br>16.00 | Introduction to biostatistics,<br>Introduction to statistical<br>programs | Associate Professor Dr.<br>Chutwichai Tovikkai |
| 2      | 19<br>Jan<br>2021 | 14.00-<br>17.00 | Data type and data<br>management  | Associate Professor Dr.<br>Chutwichai Tovikkai |

|   |                   |                 |   |  |
|---|-------------------|-----------------|---|--|
| 3 | 26<br>Jan<br>2021 | 14.00-<br>17.00 | Descriptive statistics                          | Associate Professor Dr.<br>Chutwichai Tovikkai |
| 4 | 2 Feb<br>2021     | 14.00-<br>17.00 | Statistical hypothesis tests, t-<br>test, ANOVA | Associate Professor Dr. Asada<br>Methasate     |
| 5 | 9 Feb<br>2021     | 14.00-<br>17.00 | Non-parametric test                             | Associate Professor Dr. Cherdsak<br>Iramaneera |
| 6 | 16<br>Feb<br>2021 | 14.00-<br>17.00 | Linear regression &<br>correlation              | Associate Professor Dr. Cherdsak<br>Iramaneera |
| 7 | 23<br>Feb<br>2021 | 14.00-<br>17.00 | Binary Logistic regression                      | Assistant Professor Dr. Chulaluk<br>Komoltri   |
| 8 | 2 Mar<br>2021     | 14.00-<br>17.00 | Survival analysis & Cox<br>regression           | Professor Dr. Varut Lohsiriwat                 |
| 9 | 9 Mar<br>2021     | 14.00-<br>17.00 | Sample size calculation                         | Assistant Professor Chulaluk<br>Komoltri       |

|    |                   |                 |  |  |
|----|-------------------|-----------------|--|--|
| 10 | 16<br>Mar<br>2021 | 14.00-<br>17.00 | Creating graphs and tables   | Assistant Professor Chulaluk<br>Komoltri       |
| 11 | 23<br>Mar<br>2021 | 14.00-<br>17.00 | Special consideration:<br>missing data, multiple<br>imputation, propensity score<br>matching | Assistant Professor Chulaluk<br>Komoltri       |
|    |                   |                 | Examination  | Associate Professor Dr.<br>Chutwichai Tovikkai |

Course timetable Total 30 hours

Class content will include lecture and computer lab per sessions

### 7. Assessment

Grades are based on attendance at lecture, performances on assignments, and level of attitude, skill and knowledge.

### 8. Prerequisite Reading

When reading materials are distributed or specified in advance, students are expected to read those materials beforehand.

### 9. Reference Materials

To be announced before or during individual classes

### 10. Language used

All classes are conducted in English.

### 11. Office Hours

Mon – Fri: 9:00 AM – 17:00 PM

Contact: Associate Professor Dr. Chutwichai Tovikkai,

Division of General Surgery, Department of Surgery

E-mail: [chutwichai.tov@mahidol.ac.th](mailto:chutwichai.tov@mahidol.ac.th) Tel: +662-419-8005

Please contact the instructor regarding questions or consultations.

## **12. Note(s) to Students**

None.