



School of Bioinnovation and Bio-based Product Intelligence (SCIN)  
Program in Bioinnovation (International Program, Multidisciplinary Program)  
Course: SCIN 305

Degree  Bachelor  Master  Doctoral  
Faculty of Science  
Revise Jan 2021

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## Course Syllabus

### SCIN305: Essential Skills for Scientific Research

Faculty of Science, Mahidol University

**Credit (lecture - lab – self-study): 1(1-0-2)**

**Course Description:** This course allows students to gain appropriate skills necessary for scientific research such as laboratory safety (biological, chemical, and electrical), academic integrity, plagiarism, ethics, and copyright.

**Prerequisite:** N/A

**Grade:** O-S-U

**Day/Location:** Monday 13.30-16.30 online  
Faculty of Science, Mahidol University Salaya

**Office hour:** By appointment

**Course Objective:** At the completion of the course, students should be able to

1. Learn how to effectively collect research data
2. Design experiment, utilize proper statistical analysis
3. Gain basic knowledge on R programming for scientific research
4. Aware of and adhere to an appropriate laboratory safety
5. Understand academic integrity, plagiarism, ethics, and copy right
6. Obtain necessary skills in communication and presentation



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**Course schedule:**

Date	Topic	Day-Hour
		Monday
25 Jan	Course introduction Special seminars <b>(with assignment 1)</b>	1.30-4.30 PM
1 Feb	Research ethics <b>(with assignment 2)</b>	1.30-4.30 PM
8 Feb	Copy right <b>(assignments 1, 2 due)</b>	1.30-4.30 PM
15 Feb	Academic honesty <b>(with assignment 3)</b>	1.30-4.30 PM
1 Mar	Biosafety, chemical safety, and electrical safety <b>(assignments 3 due)</b>	1.30-4.30 PM
<b>Total</b>		<b>15</b>

**Teaching method:** Online lecture (Zoom/Google Classroom) and self-study.

**Teaching Media:** PowerPoint presentation, handout and demonstration.

**Attendance:** Students are expected to attend all lectures and activities on time with all assignments completed. Make-up lecture will not be given. If you have to miss a class, let me know ahead of time. 3 absences will result in U.



### Measurement and Evaluation of Students Achievement

- |                        |     |
|------------------------|-----|
| 1. In-class discussion | 20% |
| 2. Assignments x3      | 60% |
| 3. Attendance          | 20% |

### Course Evaluation

1. Students gain knowledge according to the course objectives.
2. Students participate in class at least 80% of total hours.
3. Grading scale O-S-U  
(U = below 49, S = 50-79%, S = 80-100%)

### Instructors

1. Thaned Pruttivarasin, PhD, Department of Physics, Mahidol University
2. Teera Chantarojsiri, PhD, Department of Chemistry, Mahidol University
3. Udom Sae-Ueng, PhD, BIOTEC, NSTDA
4. Usawadee Chaiprom PhD, National Biobank of Thailand
5. Tatpong Tulyananda, PhD, Bioinnovation, Mahidol University

**Course coordinator:** Dr. Tatpong Tulyananda

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