## COURSE SYLLABUS

1. **Program of Study** Bachelor of Science (Chemistry)
   **Faculty** International College, Mahidol University

2. **Course Code** ICCH 472
   **Course Title** Secondary Metabolism

3. **Number of Credits** 4 (4-0-8) **(Lecture/Lab/Self-study)**

4. **Prerequisites** ICCH 221 & 222

5. **Type of Course** Elective major course

6. **Semester / Academic Year**:
   Second trimester 2006-2007

7. **Course Conditions**: Number of students between 20-30

8. **Course Description**:
   Selected classes of secondary metabolites; biosynthetic pathways and mechanistic syntheses of fatty acids, polyketides, isoprenoids, aromatics and amino acids.

9. **Course Objectives**:
   After successful completion of this course, students should be able to
   9.1 identify metabolites derived from secondary metabolisms;
   9.2 appreciate the biosynthetic pathways of the metabolites;
   9.3 enhance the understanding of biological sciences and biochemistry.

**10. Course Outline**

| Week | Topics | Hours | | | Instructor |
|---|---|---|---|---|---|
| | | Lecture | Lab | Self-study | |
| 1 | Introduction | 2 | - | 4 | TBA. |
| 2 | Secondary metabolites from acetate: fatty acids | 4 | - | 8 | TBA. |
| 3 | Secondary metabolites from acetate: polyketides | 4 | - | 8 | TBA. |
| 4 | Secondary metabolites from mevalonate: isoprenoids | 4 | - | 8 | TBA. |
| 5 | Metabolites from shikimic acid | 4 | - | 8 | TBA. |
| 6 | Metabolites from | 4 | - | 8 | TBA. |

| | | | | | |
|---|---|---|---|---|---|
| | shikimic acid | | | | |
| 7 | Secondary metabolism of amino acids | 4 | - | 8 | TBA. |
| 8 | Secondary metabolism of amino acids | 4 | - | 8 | TBA. |
| 9 | Metabolites of mixed biosynthetic origin | 4 | - | 8 | TBA. |
| 10 | Metabolites of mixed biosynthetic origin | 4 | - | 8 | TBA. |
| 11 | Secondary metabolism and ecology | 4 | - | 8 | TBA. |
| 12 | Secondary metabolism and ecology | 2 | - | 4 | TBA. |
| | **Total** | 44 | - | 88 | |

11. **Teaching Methods**:
    11.1 Lecturing
    11.2 Self-study
    11.3 Group discussion and presentation

12. **Teaching Media**:
    Transparencies, handouts and lecturing from boards.

**13. Measurement and Evaluation of Student Achievement**

Student achievement is measured and evaluated by

13.1 the ability to identify metabolites derived from secondary metabolisms;
13.2 the ability to appreciate the biosynthetic pathways of the metabolites;
13.3 the ability to enhance the understanding of biological sciences and biochemistry.

Student's achievement will be graded according to the College and University standard using the symbols: A, B+, B, C+, C, D+, D and F. Students must attend at least 80% of the total class hours of this course.

Assessment made from the set-forward criteria: student who gets 85% and above will have Grade A.

A suggestive minimum of;

| | |
|---|---|
| Midterm examination | 40% |
| Final examination | 50% |
| Quizzes | 10% |

**14. Course Evaluation**:

14.1 Students' achievement as indicated in number 13 above.
14.2 Students' satisfaction towards teaching and learning of the course using questionnaires.

**15. References**:

Mann, J. **Secondary Metabolism** 2nd Edition, UK: Clarendon Press; 1987.

**16. Instructors**:

TBA.

**17. Course Coordinator**:

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