

**نموذج توصيف مقرر**  
**Course Description Form**

**Name of College\Faculty :** Faculty of Science  
**Name of Department:** Department of Biological Sciences

اسم الكلية:  
اسم القسم العلمي:

|                                                                                                                                                                                                                                                                                           |                                                                  |                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|----------------------------|
| <b>Course Name</b>                                                                                                                                                                                                                                                                        | <b>Environmental Microbiology</b>                                | <b>اسم المقرر</b>          |
| <b>Course No.</b>                                                                                                                                                                                                                                                                         | <b>0466-306</b>                                                  | <b>رقم المقرر</b>          |
| <b>No. of Credits</b>                                                                                                                                                                                                                                                                     | <b>3</b>                                                         | <b>عدد الوحدات</b>         |
| <b>Theoretical Hours</b>                                                                                                                                                                                                                                                                  | <b>2</b>                                                         | <b>عدد الساعات النظرية</b> |
| <b>Practical Hours</b>                                                                                                                                                                                                                                                                    | <b>1</b>                                                         | <b>عدد الساعات المحلية</b> |
| <b>Course topics</b> <b>مواضيع المقرر</b>                                                                                                                                                                                                                                                 |                                                                  |                            |
| 1 .History and scopes of microbiology.<br>2 .Diversity of microorganisms.<br>3 .Modes of life.<br>4 .Microbial environments.<br>5 .Microbial responses to environmental variables.<br>6 .Microbial interactions.<br>7 .Microbial biochemical activities.<br>8 .Control of microorganisms. |                                                                  |                            |
| <b>Text book: (Name, Author , Year , Publisher)</b>                                                                                                                                                                                                                                       | <b>عنوان الكتاب : ( الاسم ، المؤلف ، سنة الطبع ، دار النشر )</b> |                            |
| .R. Maier and I. Pepper, C. Gerba. (2014). Environmental Microbiology, 3rd edition, Academic Press. U.S.A                                                                                                                                                                                 |                                                                  |                            |
| <b>References: (Name , Author , Year . Publisher)</b>                                                                                                                                                                                                                                     | <b>عنوان المرجع : ( الاسم ، المؤلف ، سنة الطبع ، دار النشر )</b> |                            |
| 1 .A. Varnum, M. Evans (2000). Environmental Microbiology, American Society for Microbiology (ASM).<br>2. R. Mitchell (1974). Introduction to Environmental Microbiology, Prentice-Hall                                                                                                   |                                                                  |                            |

| Prerequisites: 0466-202 |         |    |   | متطلبات المقرر |                |
|-------------------------|---------|----|---|----------------|----------------|
|                         | Exams   | 20 | % |                | الاختبارات     |
|                         | Quizzes | 4  | % |                | امتحانات قصيرة |



|         |                                          |       |   |  |                          |                 |
|---------|------------------------------------------|-------|---|--|--------------------------|-----------------|
| Grading | H.W.                                     | 3     | % |  | واجبات                   | آلية رصد المقرر |
|         | Project (field study,Lab, participation) | 30, 3 | % |  | مشاريع ( دراسة ميدانية ) |                 |
|         | Final                                    | 40    | % |  | الاختبار النهائي         |                 |
|         | %                                        |       |   |  |                          |                 |

| أهداف مخرجات المقرر : |                       |                                    |                                                                                                   |       |          |
|-----------------------|-----------------------|------------------------------------|---------------------------------------------------------------------------------------------------|-------|----------|
| الرقم                 | أهداف مخرجات المقرر : | أمثله من المقرر لتحقيق هذه الأهداف | المستوى المطلوب من عضو هيئة التدريس لتحقيق الهدف :                                                |       |          |
|                       |                       |                                    | عالي                                                                                              | متوسط | منخفض    |
| 1                     |                       |                                    |                                                                                                   |       |          |
| 2                     |                       |                                    |                                                                                                   |       |          |
| 3                     |                       |                                    |                                                                                                   |       |          |
| 4                     |                       |                                    |                                                                                                   |       |          |
| 5                     |                       |                                    |                                                                                                   |       |          |
|                       |                       |                                    |                                                                                                   |       | الحقول   |
|                       |                       |                                    |                                                                                                   |       | المهارات |
|                       |                       |                                    | منسق المقرر ( اسم عضو هيئة التدريس المشرف على توصيف المقرر ، توقيعه ، الختم و الرتبة الأكاديمية ) |       |          |
|                       |                       |                                    | تاريخ إعداد النموذج                                                                               |       |          |

| Course objectives |                                                                                            |                                                                                        |                                             |        |     |
|-------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------|--------|-----|
| No.               | Course Objectives (Learning Outcomes)                                                      | Example(s) of relevant (Topics and activities)                                         | Recommended Level to satisfy the objectives |        |     |
|                   |                                                                                            |                                                                                        | High                                        | Medium | Low |
| 1                 | Differentiate between various prokaryotic and eukaryotic microorganisms.                   | Compare sizes and structures of bacteria, fungi, microalgae and protozoa               | ✓                                           |        |     |
| 2                 | Describe microbial growth patterns and the responses of growth to environmental variables. | Construct growth curves for a psychrophilic, a mesophilic and a thermophilic bacterium |                                             | ✓      |     |

|                               |                                                                                                                                                                    |                                                                         |   |   |  |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---|---|--|
| 3                             | Recognize the microbial roles in element cycles, soil fertility and pollution control in normal and extreme environments.                                          | Examine nodule bacteria, isolation of bacteria and fungi on oily medium | ✓ |   |  |
| 4                             | Explain the biotechnical application potential of microorganisms.                                                                                                  | Demonstrate the antibiotic potential of sewage microorganisms           |   | ✓ |  |
| 5                             | Implement approaches for controlling hazardous microorganisms.                                                                                                     | Test the effects of phenol (and other antiseptics) on bacterial growth  |   | ✓ |  |
| Fields                        | Environmental Sciences, Microbiology, Microbial ecology                                                                                                            |                                                                         |   |   |  |
| Skills                        | Applied Microbiology, Microbial control and safety, critical thinking and scientific analysis                                                                      |                                                                         |   |   |  |
| Coordinator (Name and Rank) : | Dr. Haya Al-Sammar on behalf of the course coordinator,<br>Prof. Dina Al-Mailem                                                                                    |                                                                         |   |   |  |
| Signature and stamp :         | <p>د. هيا السمار<br/>قسم العلوم البيولوجية<br/>كلية العلوم - جامعة الكويت</p>  |                                                                         |   |   |  |
| Date:                         | 02\ 12 \2025                                                                                                                                                       |                                                                         |   |   |  |