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**Department of..Field &crop.**

**College of ..Agriculture.**

**University of..Salahaddin.**

**Subject: .. microbiology..**

**Course Book- for example (Year 2)**

**Lecturer's name: D.Shameran M.Tawfiq.**

**Academic Year: 2018/2019**

**Course Book**

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| **1. Course name** | **spring & summer**  |
| **2. Lecturer in charge** | **Dr. Shameran Mahmoud** |
| **3. Department/ College** | **Soil &water/Agriculture**  |
| **4. Contact** | **e-mail:dr.shameran.tawfiq@gmail.com** **Tel: (optional):07507361914** |
| **5. Time (in hours) per week**  | **2**  |
| **6. Office hours** | **10 hr.** |
| **7. Course code** |  |
| **8. Teacher's academic profile**  | **Teaching in nurse department and foresty department (medicin,bacteriology,soil microbiology,ecology immunology,pollution ,fundamental of soil,soil morphology)**  |
| **9. Keywords** |  |
| **10. Course overview:** In the end of the course, student have knowledge about : -1-identify micro organisms and macro organisms.2-the useful and harmful micro organism in soil.3-classification of the bacteria,fungi.4-important of micorrhizae.5-structure of viruse and transmission ,replication , ,infection of viruse. 6- the relationships between soil microorganisms7-protozoa types,replication. 8-role of actinomycetes in soils9- algae types ,classification10-bacteria fixed nitrogen |
| **11. Course objective:** microbiology. important to knowing micro organisms that have benefit to human and analysis complex compounds to remove pollution ,and organism, fixed nitrogen and take share in photosynthesis operation such as green purple bacteria and identified fungi and protozoaand algae. |
| **12. Student's obligation**Each students must write about role at least one micro organisms in research and then presented the research which had written by his or her way.  |
| **13. Forms of teaching:** multiple forms such as (data show, write on white board, question ,answer, disscutions )  |
| **14. Assessment scheme: five marks for:(** quize,research about prevouse laboratory, present in lesson, activity ) ‌ |
| **15. Student learning outcome:**that 10 to 30% of the soil organic matter (active fraction) is responsible for maintaining soil microorganisms.  The active fraction of organic matter is most susceptible to soil management practices, as most readily available energy sources are used up, microorganisms again become relatively inactive, Thus, soil organic compounds become stabilized and resistant to further changes by microorganisms |
| **16. Course Reading List and References‌:**▪ Key references: **clinical microbiology, basic of Microbiology, soilmicrobiology**▪ Useful references: **general microbiology, The bacteria, fungi .** ▪ Magazines and review (internet): **www.google.com, www.highwire.com, Bacteriology www.pnas.com.** |
| **17. The Topics:** | **Lecturer's name** |
| In this section the lecturer shall write titles of all topics he/she is going to give during the term. This also includes a brief description of the objectives of each topic, date and time of the lecture Each term should include not less than 16 weeks  | Lecturer's nameex: (2 hrs)ex: 14/10/2018 |
| **18. Topics (If there is any)** |  |
|  | **ناوةرِوَكى زانستى بابةتةكة** | **ئامانج لةو بابةتة** | **بابةتةكان** | **هةفتة** |
|  | بكتريا لةجي بيك هاتوة | بيناسة كردن بكتريا وبيكهاتةكاني سةرةكى وناسةرةكي   | Definition of bacteria,scientific names,bacteria compenants  | 1and 2 |
|  | دياري كردني شيوةكان كيميائي,جيني,سيرلوجي,مختبري  | ضونيتي ناسيني ميكروب (bacteria) | methods use to identifide bacteria in different source | 3 |
|  | دياري كردني زينكةي كونجاو بو كةش ونماي بكتريا  | Tempreture ,oxygen,pressure,osmotic | Physiology of bacteria | 4 |
| ئةو جورانة ديواري خانيان نية |  دياري كردني ئةو جورانة بكنريا  | Study mycoplasma,chlamedia,toxoplasma | 5 |
| شيوةكاني,جوري زياني | بيناسي كرو | Classification of fungi,character,phisiology | 6 |
| وكو مايكورايزا,كوارك,دمبلان |  كرنكترين جوراكاني كرو  | Phylum of fungi | 7 |
| ناسيني كرنكترين مايكراوركانزمي خول | شيوةي ,رولي,سوود بةخشي | Identify actinomycetes | 8 |
| ناسينةوةى سوود بةخشةكاني | ناسيني قوزةكان | Identification of algae | 9 |
| ناسينةوةى وجونيتي سوود بةخ وزياني  | جوراكاني | Identification of protozoae | 10 |
| جونخو باراستن وزيانةكاني | شيواكاني,بيكهاتي | Viruse studying | 11 |
| دياري كردني جورةكاني وجياوازيكانيان | ناسينةوةي ئةو جورة بكتريانةي كة لة دةوروبةري رِةط ئةبن | Rhizosphers microorganism | 12 |
| سيفةتةكاني و شيَوةكاني | ئةو جورة بكتريانة كة لة ناو رةطي باقلا دةذيَت | Studying Bacteriods  | 13 |
| دياري كردني شيَوة وشويني تووش بوون و دةست نيشان كردني | ناسيني كرمي بوَ زيان بةخشي رووةك لة خولَدا.  | The Nematoda  | 14 |
| ناسينةوةي  | ناسيني ئةو بكتريانة لة خولَ دةذيَت وتثبيت نتروجين دةكات | Character of Azotobacter | 15 |
|  | وةكو طةلَا, رةط ,ضيلكة دار وضوَن شيَ دةكاتةوة | Organic matter analysis by bacteria | 16 |
|  |  |  |  |  |  | 16 |
| **19. Examinations:*****1.*** Explain each of following….(bacteria incubation tempreture,duration,type of media)***2.******True or false type of exams:*** fungi anaerobic microorganism.***3. Multiple choices:*** macroorganisms(1-worms,bacteria,algae)**4.Define** (ribosome,cell wall)5. **Give the scientific names**(psycrophilic,outotrophes) |
| **20. Extra notes:** |
| **21. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ** This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.*(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).*ئه‌م کۆرسبووکه‌ ده‌بێت له‌لایه‌ن هاوه‌ڵێکی ئه‌کادیمیه‌وه‌ سه‌یر بکرێت و ناوه‌ڕۆکی بابه‌ته‌کانی کۆرسه‌که‌ په‌سه‌ند بکات و جه‌ند ووشه‌یه‌ک بنووسێت له‌سه‌ر شیاوی ناوه‌ڕۆکی کۆرسه‌که و واژووی له‌سه‌ر بکات.هاوه‌ڵ ئه‌و که‌سه‌یه‌ که‌ زانیاری هه‌بێت له‌سه‌ر کۆرسه‌که‌ و ده‌بیت پله‌ی زانستی له‌ مامۆستا که‌متر نه‌بێت.‌‌  |

**Course Book**

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| **1. Course name** | **spring & summer**  |
| **2. Lecturer in charge** | **Msc.sozan.M.** |
| **3. Department/ College** | **Soil &water/Agriculture**  |
| **4. Contact** | **e-mail:dr.shameran.tawsuzy@yahoo.com**  |
| **5. Time (in hours) per week**  | **3**  |
| **6. Office hours** | **12 hr.** |
| **7. Course code** |  |
| **8. Teacher's academic profile**  | **-** |
| **9. Keywords** |  |
| **10. Course overview:** In the end of the course, student have knowledge about : -1-identification laboratory equipments.2-sterilization.3-the useful and harmful micro organism.3-prepare smear4-use microscope and staining .5-simple stain ,gram stain,capsule stain and spore stain. 6- bacteria morphology,arrengment.7-methods used for isolation. 8-bacteria culture.  |
| **11. Course objective:** microbiology. important to knowing micro organisms that have benefit to human and analysis complex compounds to remove pollution ,and organism, fixed nitrogen and take share in photosynthesis operation such as green purple bacteria and identified fungi and protozoaand algae. |
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| **18. Topics (If there is any)** |  |
|  | **ناوةرِوَكى زانستى بابةتةكة** | **ئامانج لةو بابةتة** | **بابةتةكان** | **هةفتة** |
|  | لابي بكتريا لةجي بيك هاتوة | بيناسة كردن بكتريا وبيكهاتةكاني سةرةكى وناسةرةكي   | Microbiology apparatuse | 1and 2 |
|  | دياري كردني شيوةكان كيميائي,, فيزيائي | ضونيتي تعقيم ميكروب (bacteria) | methods use to sterilization  | 3 |
|  |  | ناسيني شيوي بكتريا | Prepare smear and microscope | 4 |
|  |  دياري كردني بكنريا  | Simple stain | 5 |
| شيوةكاني,جوري زياني | جياوازي دوو جوري بكتريا | gram stain | 6 |
|  |   | Capsule stain | 7 |
|  |  | Spore stain | 8 |
|  | جيابوونيي  | Isolation methods  | 9 |
|  | جوراكاني | Media of bacteria | 10 |
|  | شيواكاني,بيكهاتي | Culture of bacteria | 11 |
| دياري كردني جورةكاني وجياوازيكانيان | ناسينةوةي ئةو جورة بكتريانةي كة لة دةوروبةري رِةط ئةبن | Isolation bacteria from soil | 12 |
| سيفةتةكاني و شيَوةكاني |  | Identify colony of different bacteria  | 13 |
| دياري كردني شيَوة وشويني تووش بوون و دةست نيشان كردني | .  | Fungi stain | 14 |
| ناسينةوةي  |  | Fungi media | 15 |
|  |  |  |  |  |  | 16 |
| **19. Examinations:*****1.*** Explain each of following….(bacteria incubation tempreture,duration,type of media)***2.******True or false type of exams:*** fungi anaerobic microorganism.***3. Multiple choices:*** macroorganisms(1-worms,bacteria,algae)**4.Define** (ribosome,cell wall)5. **Give the scientific names**(psycrophilic,outotrophes) |
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