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| |  | | --- | | **DERS TANIMI** |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Ders Adı** | **Ders Kodu** | **Yarıyıl** | **T+U Saat** | **Kredi** | **AKTS** | | **BİTKİLERDE MİNERAL BESLENME FİZYOLOJİSİ** | **BİYO-453** | **7** | **2+0** | **2** | **3** |  |  |  | | --- | --- | | **Ön Koşul Dersleri** | Yok | | **Önerilen Dersler** | Yok | | **Dersin Veriliş Biçimi** | Yüz yüze |  |  |  | | --- | --- | | **Dersin Dili** | Türkçe | | **Dersin Seviyesi** | Lisans | | **Dersin Türü** | Seçmeli | | **Staj Durumu** | Yok | | **Dersin Koordinatörü** |  | | **Dersi Verenler** | Doç. Dr. Muhittin DOGAN | | **Dersin Yardımcıları** |  | | **Dersin Amacı** | Bu dersle ögrencilere bitkilerde mineral beslenmenin fizyolojisi ögretilmesi amaçlanmaktadir. |  |  |  | | --- | --- | | **Dersin İçeriği** | Bitki fizyolojisine giris, su metabolizmasi, mineral madde metabolizmasi, azot metabolizmasi, enerji metabolizmasi, karbon metabolizmasi |  |  | | --- | | **DERSİN ÖĞRENME ÇIKTILARI** |  |  |  |  | | --- | --- | --- | | **Dersin Öğrenme Çıktıları** | **Öğretim Yöntem ve Teknikleri** | **Ölçme Yöntemleri** | | **Bu dersi başarı ile tamamlayan öğrenciler;** |  |  | | **1)** Bitkilerdeki mineral beslenme olayların nasıl gerçekleştiğini öğrenecektir. | 1,2,3 | A,C |  | | **2)** Bitkilerde su metabolizmasının nasıl gerçekleştiğini öğrenecektir | 1,2,3 | A,C |  | | **3)** Bitki besin elementlerinin fonksiyonlarını, eksiklik ve fazlalığının etkilerini öğrenecektir | 1,2,3 | A,C |  | | **4)** Bitki beslemede kullanılan yöntemleri öğrenecektir. | 1,2,3 | A,C |  |  |  |  |  | | --- | --- | --- | | **Öğretim Yöntem ve Teknikleri** |  | 1 - Anlatım, 2 - Soru - Cevap, 3 - Tartışma | | **Ölçme Yöntemleri** |  | A - Sınav, C - Ödev |  |  | | --- | | **DERS AKIŞI** |  |  |  |  |  | | --- | --- | --- | --- | | **Hafta** | **Konular** |  | **Ön Hazırlık** | | **1** | Bitkilerde mineral beslenme alaninda günümüze kadar yapilan çalismalar |  | 1 |  | | **2** | Mutlak gerekli besin elementleri |  | 1 |  | | **3** | Mutlak gerekli besin elementlerinin belirlenme yöntemleri |  | 1 |  | | **4** | Bitki besin elementlerinin kaynagi olarak toprak |  | 1 |  | | **5** | Bitkilerde besin elementi alimi |  | 1 |  | | **6** | Bitkilerde besin elementi tasinmasi |  | 1 |  | | **7** | Bitki-su iliskileri |  | 1 |  | | **8** | Ara Sinav |  |  |  | | **9** | Bitki besin elementlerinin fonksiyonlari, eksiklik ve fazlaliklarinin etkileri: N, P,K |  | 1 |  | | **10** | Bitki besin elementlerinin fonksiyonlari, eksiklik ve fazlaliklarinin etkileri: Ca, Mg, S |  | 1 |  | | **11** | Bitki besin elementlerinin fonksiyonlari, eksiklik ve fazlaliklarinin etkileri: Fe, Mn, Zn |  | 1 |  | | **12** | Bitki besin elementlerinin fonksiyonlari, eksiklik ve fazlaliklarinin etkileri: Cu, B, Mo, Cl |  | 1 |  | | **13** | Yararli elementler |  | 1 |  | | **14** | Islenen konularin genel degerlendirilmesi |  | 1 |  |  |  | | --- | | **ZORUNLU YA DA ÖNERİLEN KAYNAKLAR** |  |  |  | | --- | --- | | **Ders Notu** |  | | **Diğer Kaynaklar** | Kaynak 1 Kaçar, B, Katkat, V: Bitki Besleme, Nobel Yay., 2009 | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  | | --- | | **DERSİN PROGRAM ÇIKTILARINA KATKISI** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | No | Program Öğrenme Çıktıları |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Katkı Düzeyi | | | | | | **1** | **2** | **3** | **4** | **5** | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 1 | Canlı sistemleri anlamaya yönelik deneysel çalışmalar yapma, sonuçlarını analiz etme ve yorumlayabilme |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  | X | | | 2 | Canlıları ve canlı sistemlerin işleyişini açıklayabilme |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  | X | | | 3 | Çevre ve biyolojik çeşitliliği koruma farkındalığı |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | X |  |  |  | | | 4 | Biyolojik uygulamalar için modern teknik ve araçları kullanabilme becerisi |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  | X |  | | | 5 | Elde ettiği bilgi birikimini sözlü ve yazılı olarak ifade edebilme becerisi |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  | X |  | | | 6 | Bireysel ve grup halinde çalışabilme becerisi |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  | X |  | | | 7 | Kazanımların ülke ekonomisine katkı yapabilecek ürüne dönüştürebilme becerisi |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  | X | | | 8 | Zamanın biyolojik gelişimlerini takip etme bilinci |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  | X | | | 9 | Mesleki ve etik sorumluluk bilinci |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  | X | | | 10 | Mesleki özgüven geliştirebilme |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  | X | | |

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| |  | | --- | | **DEĞERLENDİRME YÖNTEM VE KRİTERLERİ** |  |  |  |  | | --- | --- | --- | | **YARIYIL İÇİ ÇALIŞMALARI** | **SAYISI** | **KATKI YÜZDESİ** | | Ara Sınav | 1 | %40 | | **Toplam** | 1 | %40 | | Yıliçinin Başarıya Oranı |  | %40 | | Finalin Başarıya Oranı |  | %60 | | **Toplam** |  | %100 | |

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| |  | | --- | | **DERS KATEGORİSİ** |  |  |  | | --- | --- | | **Destek Dersleri** | **X** | |

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| |  | | --- | | **AKTS / İŞ YÜKÜ TABLOSU** |  |  |  |  |  | | --- | --- | --- | --- | | **Etkinlik** | **SAYISI** | **Süresi(Saat)** | **Toplam İş Yükü(Saat)** | | Derse Katılım | 14 | 2 | 28 | | Sınıf Dışı Ders Çalışma Süresi(Ön çalışma, pekiştirme) | 14 | 3 | 42 | | Arasınavlar için Bireysel Çalışma | 1 | 5 | 5 | | Yarıyıl Sonu Sınavı için Bireysel Çalışma | 1 | 5 | 5 | | **Toplam İş Yükü(Saat)** |  |  | 80 | | **Toplam İş Yükü(Saat)/ 30 (s)** |  |  | 2,66 | | **Dersin AKTS Kredisi** |  |  | 3 | |