* Co r e Name	Chine e 材料 中 仿 学原			
	Engli h Bionic Principle in Ma erial De ign			
* Credi	2	* Teaching Ho r	32 1 16	
* Seme er	Spring	* Cro - eme er?	No	Spanning o er Seme er
* Co r e Ca egor	Speciali ed Co r e	* Co r e T pe	For f ll- ime den	
* In r c ion Lang age	Chine e	Teaching Me hod	In cla eaching	
* Grade	Le er grading	E am Me hod	E a	
* School				
S bjec				

Per on in charge	Name	ID	School	E-mail
		15329		Nano rface@ j .ed .cn

* ( ) Co r e De crip ion	200 本 天 命 构和 性，揭 对 工作原 ，以此来为工 材料 提供新思想和新方 仿 材料 契合国家低 、 保、可持发展 念，更 效地 决材料制备 中 模型优化 ， 予材料 定功 ，并使其更好地 于实 应 场景。本 将 与各分支学 前沿发展 合，强 导向，强化学 发 、分析和 决 力， 循新兴仿 学 关学 发展与创新 律，强 其中新原 、新 、新成果、新应 和 。本 料大多来 于 二三十年 最前沿 展， 学 切 体会仿 学 域 快 发展 动态， 发学 情，培养学 兴 和创新思 。
* Engli h Co r e De crip ion	Thi co r e mmari e he recen ad ance for he de ign of engineering ma erial in pired from r c re and proper ie of na ral li ing em . The de ign of biomime ic ma erial conform o he ra eg of lo -carbon, green econom , and ainable de elopmen in o r na ional policie . I can more efficien l op imi e he problem fo nd in ma erial prepara ion and de ign, endo ing ma erial i h pecific f nc ion ha are be er adap i e o ac al applica ion cenario . Thi co r e combine heore ical kno ledge i h he c ing-edge de elopmen in differen field , empha i ing re earch q e ion and reng hening he den ' abili o di co er, anal e and ol e problem . Follo ing he de elopmen and inno a ion la of emerging bionic , hi co r e empha i e ne principle , nder anding and applica ion of ne kno ledge, ne achie emen , and ne applica ion . Mo of he ma erial in hi co r e come from he mo c ing-edge re earch progre in he pa 20 o 30 ear , o ha den can e perience he rapid de elopmen in he field of bionic . Thi o ld im la e he den ' en h ia m for cien ific re earch, and c l i a e den ' cien ific re earch in ere and inno a i e hinking.

* ( ) S llab	1.1 2 1.2 2 1.3 2 1.4 2 1.5 2 2.1 2 2.2 2 2.3 2 2.4 2 2.5 2 3.1 2 3.2 2 3.3 2 3.4 2 3.5 2 3.6 2
* Engli h S llab	Chap er 1. Na ral S r c re-In pired Ma erial 1.1 In rod c ion o Bionic and Biominerali ed S r c re 1.2 Bioin erface-in pired Ma erial 1.3 Na ral Spa ial Config ra ion-in pired Ma erial 1.4 M l i-pha e Biomime ic Compo i e Ma erial 1.5 Biomime ic Hierarchical Ma erial Chap er 2. Na re-In pired F nc ional Ma erial 2.1 Biomime ic F nc ional Par icle 2.2 Biomime ic F nc ional Drople 2.3 One-dimen ional Bionic Nano ire and Nanofibril 2.4 T o-dimen ional Bionic F nc ional Membrane 2.5 Three-dimen ional Bionic Self-healing Ma erial Chap er 3. Bionic S em and De ice 3.1 Bioin pired Sen or 3.2 Bioin pired Tran d cer 3.3 Bioin pired Ac a or 3.4 Bioin pired Robo ic & Implan able De ice 3.5 Organ-on-chip & Ar ificial Organ 3.6 In-cla Di c ion & Pre en a ion
* Req iremen	50 1. 5 pp 30% 2. 70% 60
* Engli h Req iremen	1. In-cla pre en a ion for 5 min e, pecif ing ho o appl he concep of bionic in he de ign of ne ma erial . Thi oral defen e ake o er 30% of o al core. 2. Wri e a hor mmar i h he heme of biomime ic ma erial . Thi hor e a ake o er 70% of he o al core. O erall ra ing m be 60p /100p
* Re o rce	_____
* Engli h Re o rce	In-cla co r e are