

Emphasis in Bone Biology

Students interested in pursuing a career in skeletal biology, craniofacial development, and tissue engineering will follow this emphasis. After completion of the curriculum, students will be familiar with skeletal and bone biology, and have basic knowledge of molecular, cellular, and oral biology. They will also be equipped to perform research on both basic and clinical aspects of skeletal biology, craniofacial development, and tissue engineering.

RECOMMENDED COURSES

if minor in Microbiology, Immunology & Cancer Biology (MICaB):

BMEN 5041	Tissue Engineering	3 credits
GCD 5036	Molecular Cell Biology	3 credits
MICA 8004	Cellular and Cancer Biology	4 credits
MICA 8007	Cell Biology and Biochemistry of the Extracellular Matrix	3 credits
MICA 8009	Biochemical Aspects of Normal and Abnormal Cell Growth and Cell Death	2 credits
MICA 8910	Seminar: Faculty Research Topics	0 credits
OBIO 8012*	Basic Concepts in Skeletal Biology	2 credits
OBIO 8028*	Molecular Basis of Cellular and Microbial Adhesion	2 credits
OBIO 8371*	Mucosal Immunobiology	3 credits
STAT 5021	Statistical Analysis	4 credits

if minor in Molecular, Cellular, Developmental Biology & Genetics (MCDB&G):

BIOC 8002	Molecular Biology and Regulation of Biological Processes	3 credits
BMEN 5041	Tissue Engineering	3 credits
GCD 5036	Molecular Cell Biology	3 credits
GCD 8073	Advanced Human Genetics	3 credits
GCD 8161	Advanced Developmental Biology	3 credits
MICA 8007	Cell Biology and Biochemistry of the Extracellular Matrix	3 credits
OBIO 8012*	Basic Concepts in Skeletal Biology	2 credits
OBIO 8028*	Molecular Basis of Cellular and Microbial Adhesion	2 credits
STAT 5021	Statistical Analysis	4 credits

*All PhD students in the Oral Biology graduate program, regardless of emphasis, must satisfactorily complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371), and register and participate in the oral biology student seminar series (OBIO 8030) each semester.

CONTACTS

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REPRESENTATIVE FACULTY

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Information in this document is subject to change. Students are responsible for verifying information with their advisors and all relevant departments.

CALENDARS

Option 1A: Minor in MICaB starting in even-number year

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
GCD 5036	3 cr	MICA 8004	4 cr	Summer enrollment is optional.	
MICA 8002	4 cr	MICA 8910	0 cr		
OBIO 802x	2 cr	OBIO 8012	2 cr	OBIO 8027	2 cr
OBIO 8030	1 cr	OBIO 8028	2 cr	STAT 5021	4 cr
		OBIO 8030	1 cr		
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>6</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
BMEN 5041	3 cr.	MICA 8007	3 cr	Summer enrollment is optional.	
MICA 8910	0 cr	MICA 8009	2 cr		
OBIO 8371	3 cr	MICA 8910	0 cr	If prelims completed:	
OBIO 8030	1 cr	OBIO 8030	1 cr	OBIO 8888	6 cr.
		Written prelim. exam			
		Oral prelim. exam (by month 18)		If prelims not completed:	
				OBIO 8666	6 cr.
<i>Total credits:</i>	<i>7</i>	<i>Total credits:</i>	<i>6 cr</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	8 cr		
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>9</i>	OBIO 8888	2 or 8 cr (depends on # taken in Summer 2)

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Option 1B: Minor in MICaB starting in odd-number year

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
GCD 5036	3 cr	MICA 8004	4 cr	Summer enrollment is optional.	
MICA 8002	4 cr	MICA 8910	0 cr		
OBIO 8371	3 cr	OBIO 8012	2 cr	OBIO 8027	2 cr
OBIO 8030	1 cr	OBIO 8030	1 cr	STAT 5021	4 cr
<i>Total credits:</i>	<i>11</i>	<i>Total credits:</i>	<i>7</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
BMEN 5041	3 cr	MICA 8007	3 cr	Summer enrollment is optional.	
MICA 8910	0 cr	MICA 8009	2 cr		
OBIO 802X	2 cr	MICA 8910	0 cr	If prelims completed:	
OBIO 8030	1 cr	OBIO 8028	2 cr	OBIO 8888	6 cr.
		OBIO 8030	1 cr		
		Written prelim. exam		If prelims not completed:	
		Oral prelim. exam (by month 18)		OBIO 8666	6 cr.
<i>Total credits:</i>	<i>6</i>	<i>Total credits:</i>	<i>8</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	6 cr		
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>10</i>	OBIO 8888	4 or 10 cr (depends on # taken in Summer 2)

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

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- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Option 2A: Minor in GCD starting in even-number year

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
BIOC 8002	4 cr	GCD 8161	3 cr	Summer enrollment is optional.	
GCD 5036	3 cr	OBIO 8012	2 cr		
OBIO 8030	1 cr	OBIO 802x	2 cr	OBIO 8027	2 cr
		OBIO 8030	1 cr	STAT 5021	4 cr
<i>Total credits:</i>	8	<i>Total credits:</i>	8	<i>Total credits:</i>	6

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
BMEN 5041	3 cr	MICA 8007	3 cr	Summer enrollment is optional.	
GCD 8073	3 cr	OBIO 8028	2 cr		
OBIO 802X	2 cr	OBIO 8030	1 cr	If prelims completed:	
OBIO 8030	1 cr	Written prelim. exam		OBIO 8888	6 cr.
		Oral prelim. exam (by month 18)		If prelims not completed:	
				OBIO 8666	6 cr.
<i>Total credits:</i>	9	<i>Total credits:</i>	6	<i>Total credits:</i>	6

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	6 cr		
				OBIO 8888	4 or 10 cr (depends on # taken in Summer 2)
<i>Total credits:</i>	9	<i>Total credits:</i>	9		

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	1	<i>Total credits:</i>	1		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Option 2B: Minor in GCD starting in odd-number year

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
BIOC 8002	4 cr	GCD 8161	3 cr	Summer enrollment is optional.	
GCD 5036	3 cr	OBIO 8012	2 cr		
OBIO 802x	2 cr	OBIO 8028	2 cr	OBIO 8027	2 cr
OBIO 8030	1 cr	OBIO 8030	1 cr	STAT 5021	4 cr
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>8</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
BMEN 5041	3 cr	MICA 8007	3 cr	Summer enrollment is optional.	
GCD 8073	3 cr	OBIO 802X	2 cr		
OBIO 802X	2 cr	OBIO 8030	1 cr	If prelims completed:	
OBIO 8030	1 cr	Written prelim. exam		OBIO 8888	6 cr.
		Oral prelim. exam (by month 18)		If prelims not completed:	
				OBIO 8666	6 cr.
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>6</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	6 cr		
				OBIO 8888	4 or 10 cr (depends on # taken in Summer 2)
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>10</i>		

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
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<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

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