

# UNDERGRADUATE DEGREE CURRICULA

For Students Entering Maritime College During 2022-23 Academic Year

As of October 3, 2022

# UNDERGRADUATE DEGREE CURRICULA

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## **DEGREE CURRICULA NOTES**

A student is responsible for knowing when their required courses are offered, as shown in the published curricula and course descriptions. For some curricula, flow charts showing the sequencing of courses is also available (check with department offering your curriculum).

### **General Remarks**

Each degree curriculum in this document is provided as a reference showing all course requirements arranged in a model sequence. All bachelor's degrees leading to USCG licensure also require passing the relevant license exams.

A student's individual degree plan may divert from the published curriculum, but must take into account the following:

- A course may be offered only in certain semesters.
- Course prerequisites and corequisites must be honored.

The semester scheduling of course offerings is available in both this document and the accompanying course descriptions document. Course prerequisites/corequisites are available in the accompanying course descriptions document.

**<u>Rules about Curriculum Changes</u>** (Students are normally required to follow the policies below. Students may appeal in a timely fashion for waivers through the department chair and Provost.)

- **1. Grandfather clause:** A student is expected to complete their major curriculum as specified at the time of matriculation. A student may choose to follow a later curriculum, but the student must complete all of the requirements of that later curriculum.
- **2. Readmission rule:** A readmitted student follows the curriculum in effect at the time the student returns to studies. The only departure from the school that does not require readmission is an official leave of absence.
- **3.** Change of major rule: When a student changes major, they must change to the curriculum in effect at the time of the change.
- **4. Regulatory change rule:** If a regulatory body (such as the U.S. Coast Guard or ABET) institutes new requirements that change the student's curriculum, the student must complete the new requirements.

## **DEFINITIONS FOR ELECTIVE CATEGORIES**

A **Free Elective** is defined as any course (except ENGL 090-095 and MATH 080) *not required by the student's degree program*. The sum of credits earned through Free Electives must equal the total required for the given degree program. Pass/Fail courses cannot be used as Free Electives.

An **Engineering (ENGR) Elective** is defined as any one of the following courses, *not required by the student's degree program:* any course numbered ENGR 3xx, 4xx, 50x, 54x, or 6xx; CHEM 213, CHEM 301, CHEM 321, ES 420, ES 430, MATH 311, MATH 446, OCEA 308, OCEA 425, NVSC 304; and other courses with the Engineering Chair's approval.

A **Global Business and Transportation (GBAT) Elective** is defined as any one of the following courses, *not required by the student's degree program:* MT 350, MT 408, MT 430, MT 435, NVSC 201, all courses with the prefix GBAC, GBEC, GBLW, GBMG, GBTT, or GBUS.

A **Humanities (HUMN) Elective** is defined as any one of the following courses, *not required by the student's degree program*: CHIN 101 or higher; ENGL 200 or higher (except ENGL 452); HIST 200 or higher; HUMN 300 or higher; NVSC 102, 311 and 402; SPAN 101 or higher.

A Law Elective is any course from the following list, *not required by the student's degree program*: GBLW 431, GBLW 433, GBLW 435, GBLW 437, GBMG 348, HUMN 430, MT 404.

A Liberal Arts & Sciences (LAS) Elective is defined as any one of the following courses, *not required by the student's degree program*: CHIN 101 or higher; ENGL 200 or higher (except ENGL 452); GBEC 121, 122, 424, 428; GBLW 435; HIST 200 or higher; HUMN 300 or higher; MATH 090 or higher; NVSC 102, 311 and 402; SPAN 101 or higher; SS 101 or higher; all courses with the prefix BIO, CHEM, ES, GEOL, METE, OCEA, or PHYS.

A Marine Environmental Science (MES) Elective is any BIO, ES, METE, or OCEA course numbered 300 or higher *not required by the student's degree program*.

A **Marine Transportation (MT) Elective** is any course from the following list, *not required by the student's degree program:* MT 212, MT 350, MT 404, MT 408, MT 430, MT 435, MT 450, NAUT 420, NAUT 476.

A **Physical Education (PE) Elective** is any course with the prefix PE *not required by the student's degree program.* 

## B.E. in Electrical Engineering with Deck License

### Fall Semester

wer	Division	-	Freshman	Yea

## Spring Semester

		Fall Semester					Spring Semester	
		Low	er Divi	sion -	Freshma	n Year		
		General Chemistry I	3				Freshman English II for Engineers	3
		General Chemistry I Laboratory	1				Engineering Graphics	1
		Freshman English I	3				Programming for Engineers	2
	ENGR 110+	Intro to Engineering Practice	2			MATH 102		4
	LEAD 101	Leadership/Maritime Experience	1		L	NAUT 102	Intro to Vessel Ops & Seamanship	1
	MATH 101	Calculus I	4		L	NAVG 112	Navigation I: Intro to Navigation	4
		Water Safety & Survival	1				Engineering Physics I	4
	PS 112 <sup>+</sup>	STCW Basic Training	2			PHYS 104	Engineering Physics I Laboratory	0.5
		Semester Credits:	17				Semester Credits:	19.5
_	MT 510	Summer Sea Term I	6					
		Low	er Divis	ion - S	Sophomo	re Year		
	ENGR 242	Statics	3			CHEM 212	Materials Science I	3
1	HUMN 201	World Literature & Culture I	3			ENGR 290	Circuit Analysis	3
1	MATH 211	Calculus III	4			ENGR 292+	Digital Electronics	4
		Meteorology for Mariners	3				World Literature & Culture II	3
1	PHYS 201	Engineering Physics II	4			MATH 212	Differential Equations	4
1		Engineering Physics II Laboratory	0.5		L		Navigation II: Oceans	4
		Semester Credits:	17.5	_	LI		Semester Credits:	21
-	MT 520	Summer Sea Term II	6	OR	L	MT 521	Cadet Comm Vessel Shipping	6
		T			T!	V		
	ENGR 345	Engineering Statistical Analysis	3	vision	- Junior		Engineering Economics	3
		Signals & Systems	3				Electric Machines	3
		Instrumentation & Measurement	1				Machine Learning	3
		Analog Electronics	4				Control System Theory	3
		Electromagnetic Fields	3		L		Ship Const & Stability (Unltd Lic)	2
,		Rules of the Road	2		L		Nautical Operations: Safety	2
, ,		Intro to Integrated Bridge Systems	3		L		Intgrtd Bridge Sys & Voyage Plannin	4
, 	10101 515	Semester Credits:	19			14110 512	Semester Credits:	20
-		a	_ 1					
Ĺ		Summer Sea Term III	5					
_	PS 412	Medical Care Provider	1					
		U	oper Di	vision	- Senior	Year		
	ENGR 481	Communications Theory	3			<b>ENGR 489</b> <sup>+</sup>	Electrical Design II	4
	ENGR 488+	Electrical Design I	3			ENGR 494	Intro Renewable Energy Resource	3
		Power Electronics & Electric Drives	4				AC & DC Power Distribution Sys	3
		American Civilization I	3		L		Marine Cargo Operations	3
,		Intro to Cargo Ops & Stability	3					
1		Free Elective	3					-
		Semester Credits:	19		<u> </u>		Semester Credits:	13
		9th Semester						
	HIST 102	American Civilization II	3				USCG License Exam:	
	MT 412	Deck License Seminar	4					
		Maritime Communications	3				Lower Division Credits:	87
_		Bridge Resource Mgmt (Unltd Lic)	3				Upper Division Credits:	93
	NAUT 416+						License Credits (L in left column):	62
_ _ _	NAUT 416 <sup>+</sup>	Free Elective	3					

## **B.E. in Electrical Engineering with Engine License**

### **Fall Semester**

		Le	ower Div	ision - l	Fresh	ıman Year
	CHEM 121	General Chemistry I	3			ENG
	CHEM 122	General Chemistry I Laboratory	1			ENG
	ENGL 101	Freshman English I	3			ENG
	ENGR 110+	Intro to Engineering Practice	2		L	ENGF
	LEAD 101	Leadership/Maritime Experience	1			MAT
	MATH 101	Calculus I	4			PHY
L	PS 103	Water Safety & Survival	1			PHY
L	PS 112+	STCW Basic Training	2			
		Semester Credits	s: 17			

#### **Spring Semester**

res	nman year			
	ENGL 103	Freshman English II for Engineers	3	
	ENGR 100	Engineering Graphics	1	
	ENGR 120	Programming for Engineers	2	
L	ENGR 540*	Introduction to Ship Systems	3	
	MATH 102	Calculus II	4	
		Engineering Physics I	4	
	PHYS 104	Engineering Physics I Laboratory	0.5	
	•	Constant Constitution	175	

Semester Credits: 17.5

6

#### ENGR 510 Summer Sea Term I 6 L

		201		
	ENGR 242	Statics	3	
L	ENGR 503+	Manufacturing Processes I	1	
L	ENGR 542	Ship Systems II	2	
	HUMN 201	World Literature & Culture I	3	
	MATH 211	Calculus III	4	
	PHYS 201	Engineering Physics II	4	
	PHYS 203	Engineering Physics II Laboratory	0.5	
		Semester Credits:	17.5	
			-	

			-	
	CHEM 212	Materials Science I	3	
	ENGR 290	Circuit Analysis	3	
	ENGR 292+	Digital Electronics	4	
L	ENGR 504+	Manufacturing Processes II	1	
L	ENGR 541	Ship Systems I	2	
	HUMN 202	World Literature & Culture II	3	
	MATH 212	Differential Equations	4	
		Semester Credits:	20	

ENGR 520 Summer Sea Term II L

#### ENGR 521 Cadet Comm Vessel Shipping 6 OR L

		1	Upper D	)ivision
	ENGR 345	Engineering Statistical Analysis	3	
	ENGR 383	Signals & Systems	3	
	ENGR 385	Instrumentation & Measurement	1	
	ENGR 387+	Analog Electronics	4	
	ENGR 394	Electromagnetic Fields	3	
L	ENGR 543*	Ship Systems III	3	
	HIST 101	American Civilization I	3	
		Semester Credits	s: 20	

Junior Year ENGR 314 Engineering Economics 3 ENGR 395<sup>+</sup> Electric Machines 3 **ENGR 396 Machine Learning** 3 ENGR 398<sup>+</sup> Control System Theory 3 L L ENGR 544 Ship Systems IV 4 NAUT 308 Nautical Operations: Safety 2 18

Semester Credits:

L	ENGR 516	Engine License Seminar	0	
L	ENGR 530	Summer Sea Term III	5	
L	PS 412	Medical Care Provider	1	

Upper Divisi	on - Senior	Year
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L	ENGR 371	Applied Naval Architecture	3	
	ENGR 481	<b>Communications</b> Theory	3	
	ENGR 488+	Electrical Design I	3	
	ENGR 490*	<b>Power Electronics &amp; Electric Drives</b>	4	
		Free Elective	3	
		Semester Credits:	16	

ENGR 489+	Electrical Design II	4	
ENGR 494	Intro Renewable Energy Resource	3	
ENGR 497	AC & DC Power Distribution Sys	3	
HIST 102	American Civilization II	3	
	Free Elective	3	
	Semester Credits:	16	

USCG License Exam:

84

76

42

160

Lower Division Credits:

Upper Division Credits: License Credits (L in left column):

Total Credits:

Courses in **bold type** are typically limited to the semester shown.

## **B.E. in Electrical Engineering with Internship**

#### **Fall Semester**

	LUV		13101
CHEM 121	General Chemistry I	3	
CHEM 122	General Chemistry I Laboratory	1	
ENGL 101	Freshman English I	3	
ENGR 110+	Intro to Engineering Practice	2	
LEAD 101	Leadership/Maritime Experience	1	
MATH 101	Calculus I	4	
PE 100	Swimming and Lifetime Fitness	1	
	Semester Credits:	15	

### **Spring Semester**

Low	er Div	vision - Free	shman Year			
	3		ENGL 103	Freshman English II for Engineers	3	
	1		ENGR 100	Engineering Graphics	1	
	3		ENGR 120	Programming for Engineers	2	
	2		MATH 102	Calculus II	4	
•	1		PHYS 102	Engineering Physics I	4	
	4		PHYS 104	Engineering Physics I Laboratory	0.5	
	1					
dite	15		•	Samastar Cradits:	14.5	

Semester Credits: 14.5

3

3

4

	Lov	ver Divisi	on - Sophomore Yes	ar
ENGR 242	Statics	3	CH	IEM
HUMN 201	World Literature & Culture I	3	EN	IGR
MATH 211	Calculus III	4	EN	GR
PHYS 201	Engineering Physics II	4	HU	MN
PHYS 203	Engineering Physics II Laboratory	0.5	MA	ATE
	Semester Credits	: 14.5		

ENGR 292<sup>+</sup> Digital Electronics HUMN 202 World Literature & Culture II

ENGR 526 Industrial Internship I 3

	HUMIN 202	world Literature & Culture II	3	
ĺ	MATH 212	Differential Equations	4	
		Semester Credits:	17	
-				
ſ	ENGR 314	Engineering Economics	3	

CHEM 212 Materials Science I

ENGR 290 Circuit Analysis

		Upper Di	vision
ENGR 345	Engineering Statistical Analysis	3	
ENGR 383	Signals & Systems	3	
ENGR 385	Instrumentation & Measurement	1	
ENGR 387 <sup>+</sup>	Analog Electronics	4	
ENGR 394	Electromagnetic Fields	3	
HIST 101	American Civilization I	3	
· · ·	Semester Credits	: 17	
		•	

ENGR 536 Industrial Internship II 3

Alternate Internship Choice:

LINGK J14	Engineering Leononnes	5	
ENGR 395+	Electric Machines	3	
ENGR 396	Machine Learning	3	
ENGR 398+	Control System Theory	3	
HIST 102	American Civilization II	3	
	Semester Credits:	15	

ENGR 538 Extended Industrial Internship	6	
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#### **Upper Division - Senior Year**

ENGR 481	<b>Communications Theory</b>	3	
ENGR 488+	Electrical Design I	3	
ENGR 490+	Power Electronics & Electric Drives	4	
	Engineering Elective	3	
	Free Elective	3	
	Semester Credits:	16	

ENGR 489+	Electrical Design II	4	
ENGR 494	Intro Renewable Energy Resource	3	
ENGR 497	AC & DC Power Distribution Sys	3	
	Engineering Elective	3	
	Semester Credits:	13	

Lower Division Credits:	
Upper Division Credits:	64
Total Credits:	128

## **B.E. in Facilities Engineering with Engine License**

#### **Fall Semester**

		Lo	wer Div	vision -	Fres	hman Year
	CHEM 121	General Chemistry I	3			ENG
	CHEM 122	General Chemistry I Laboratory	1			ENG
	ENGL 101	Freshman English I	3			ENG
	ENGR 110+	Intro to Engineering Practice	2		L	ENGF
	LEAD 101	Leadership/Maritime Experience	1			MAT
	MATH 101	Calculus I	4			PHY
L	PS 103	Water Safety & Survival	1			PHY
L	PS 112+	STCW Basic Training	2			
		Semester Credits	: 17			

#### **Spring Semester**

rres	nman year			
	ENGL 103	Freshman English II for Engineers	3	
	ENGR 100	Engineering Graphics	1	
	ENGR 120	Programming for Engineers	2	
L	ENGR 540+	Introduction to Ship Systems	3	
	MATH 102	Calculus II	4	
	PHYS 102	Engineering Physics I	4	
	PHYS 104	Engineering Physics I Laboratory	0.5	
		Somastar Cradita	175	

Semester Credits: 17.5

6

ENGR 510 Summer Sea Term I 6 L

#### Lower Division - Sophomore Year

	ENGR 242	Statics	3	
L	ENGR 503+	Manufacturing Processes I	1	
L	ENGR 542	Ship Systems II	2	
	HUMN 201	World Literature & Culture I	3	
	MATH 211	Calculus III	4	
		Engineering Physics II	4	
	PHYS 203	Engineering Physics II Laboratory	0.5	
		Semester Credits:	17.5	

	CHEM 212	Materials Science I	3	
	or *ENGR 347	Strength of Materials	3	
	ENGR 244	Dynamics	3	
	ENGR 290	Circuit Analysis	3	
L	ENGR 504+	Manufacturing Processes II	1	
L	ENGR 541	Ship Systems I	2	
	HUMN 202	World Literature & Culture II	3	
	MATH 212	Differential Equations	4	
		Semester Credits:	19	

#### L ENGR 520 Summer Sea Term II

6 OR L ENGR 521 Cadet Comm Vessel Shipping

#### nr V **Upper Division - Junio**

			opper i	011151
	ENGR 341	Fluid Mechanics	3	
	ENGR 344	Thermodynamics	3	
	ENGR 345	Engineering Statistical Analysis	3	
	ENGR 380+	Intro to Electric Machinery	3	
L	ENGR 543+	Ship Systems III	3	
	HIST 101	American Civilization I	3	
		Semester Credits	: 18	

Ju	nior Year			
	ENGR 347	Strength of Materials	3	
	or * CHEM 212	Materials Science I	3	
	ENGR 351	Heat Transfer	3	
	ENGR 354+	Marine Engineering Design I	3	
	ENGR 390	Applied Electronics	3	
	ENGR 424	HVAC System Op & Mgmt	3	
L	ENGR 544	Ship Systems IV	4	
L	NAUT 308	Nautical Operations: Safety	2	
		Semester Credits:	21	

L	ENGR 516	Engine License Seminar	0	
L	ENGR 530	Summer Sea Term III	5	
L	PS 412	Medical Care Provider	1	

ENGR 314 Engineering Economics

ENGR 423 HVAC System Design

L

ENGR 350<sup>+</sup> Automation & Control Systems

ENGR 425 Facilities Engineering Design I

ENGR 371 Applied Naval Architecture

ENGR 516 Engine Lice	ense Seminar 0
ENGR 530 Summer S	ea Term III 5
PS 412 Medical Ca	re Provider 1

U	oper I	Division	- Se	nior Year			
	3			ENGR 348	Strength of Materials Laboratory	1	
	3			ENGR 349	Transport Processes Laboratory	1	
	3			ENGR 426	Facilities Engineering Design II	4	
	3			ENGR 444	Engr Project Management	3	
	4			HIST 102	American Civilization II	3	
					Free Elective	3	
ts:	16				Semester Credits:	15	

USCG License Exam:

Lower Division Credits:

Upper Division Credits:

License Credits (L in left column):

159 Total Credits:

83

76

42

\* Students wishing to transfer to a Mechanical Engineering program at another SUNY campus should take this course.

Semester Credits:

Courses in **bold type** are typically limited to the semester shown.

+ Students must register for both lecture and laboratory or recitation.

3		ENGR 354+
3		ENGR 390

## B.E. in Facilities Engineering with Internship

#### **Fall Semester**

Lower	Division	-	Freshman	Yea

### Spring Semester

				man Year		-
	General Chemistry I	3			Freshman English II for Engineers	3
	General Chemistry I Laboratory	1			Engineering Graphics	1
	Freshman English I	3			Programming for Engineers	2
	Intro to Engineering Practice	2			Calculus II	4
	Leadership/Maritime Experience	1			Engineering Physics I	4
MATH 101 C		4		PHYS 104	Engineering Physics I Laboratory	0.5
PE 100 S	Swimming and Lifetime Fitness	1				
	Semester Credits:	15			Semester Credits:	14.5
	Low	er Divis	on - Sopho	more Year		
ENGR 242 S	Statics	3		CHEM 212	Materials Science I	3
HUMN 201 V	World Literature & Culture I	3		or *ENGR 347	Strength of Materials	5
MATH 211 C	Calculus III	4	-	ENGR 244	Dynamics	3
PHYS 201 E	Engineering Physics II	4		ENGR 290	Circuit Analysis	3
PHYS 203 F	Engineering Physics II Laboratory	0.5	-	HUMN 202	World Literature & Culture II	3
				MATH 212	Differential Equations	4
	Semester Credits:	14.5			Semester Credits:	16
ENGR 526 I	Industrial Internship I	3				
	U	pper Di	ision - Jun	ior Year		
ENGR 341 F	Fluid Mechanics	3	-	ENGR 347	Strength of Materials	2
ENGR 344 T	Thermodynamics	3	$-\square$	or * CHEM 212	Materials Science I	3
ENGR 345 F	Engineering Statistical Analysis	3		ENGR 351	Heat Transfer	3
		2		ENGD 254		•
ENGR 380+ I	Intro to Electric Machinery	3		ENGR 354	Marine Engineering Design I	3
	American Civilization I	3			Marine Engineering Design I Applied Electronics	3
	-			ENGR 390		-
	-			ENGR 390	Applied Electronics	3
HIST 101 A	American Civilization I	3		ENGR 390	Applied Electronics HVAC System Op & Mgmt	3
HIST 101 A	American Civilization I Semester Credits: Industrial Internship II	3 15 3		ENGR 390 ENGR 424	Applied Electronics HVAC System Op & Mgmt Semester Credits:	3 3 15
HIST 101 A	American Civilization I Semester Credits:	3 15 3		ENGR 390 ENGR 424	Applied Electronics HVAC System Op & Mgmt	3
HIST 101 A	American Civilization I Semester Credits: Industrial Internship II Alternate Internship U	3 15 3 Choice	  : ision - Sen	ENGR 390 ENGR 424 ENGR 538 ior Year	Applied Electronics HVAC System Op & Mgmt Semester Credits: Extended Industrial Internship	3 3 15
HIST 101 A ENGR 536 I ENGR 314 E	American Civilization I Semester Credits: Industrial Internship II Alternate Internship Uj Engineering Economics	3 15 3 0 Choice pper Di 3		ENGR 390 ENGR 424 ENGR 538 ior Year ENGR 348	Applied Electronics <b>HVAC System Op &amp; Mgmt</b> Semester Credits: <b>Extended Industrial Internship</b> Strength of Materials Laboratory	3 3 15
HIST 101 A ENGR 536 I ENGR 314 E ENGR 350 <sup>+</sup> A	American Civilization I Semester Credits: Industrial Internship II Alternate Internship U Engineering Economics Automation & Control Systems	3 15 3 5 Choice pper Di 3 3		ENGR 390 ENGR 424 ENGR 538 ior Year ENGR 348 ENGR 349	Applied Electronics HVAC System Op & Mgmt Semester Credits: Extended Industrial Internship Strength of Materials Laboratory Transport Processes Laboratory	3 3 15 6 1 1
HIST 101 A ENGR 536 I ENGR 314 E ENGR 350 <sup>+</sup> A ENGR 423 H	American Civilization I Semester Credits: Industrial Internship II Alternate Internship U Engineering Economics Automation & Control Systems HVAC System Design	3 15 3 5 Choice pper Di 3 3 3 3		ENGR 390 ENGR 424 ENGR 538 ior Year ENGR 348 ENGR 349 ENGR 420	Applied Electronics <b>HVAC System Op &amp; Mgmt</b> Semester Credits: <b>Extended Industrial Internship</b> Strength of Materials Laboratory <b>Transport Processes Laboratory</b> <b>Facilities Engineering Design II</b>	3 3 15 6 1 1 4
HIST 101 A ENGR 536 I ENGR 314 E ENGR 350 <sup>+</sup> A ENGR 423 F ENGR 425 F	American Civilization I Semester Credits: Industrial Internship II Alternate Internship Uj Engineering Economics Automation & Control Systems HVAC System Design Facilities Engineering Design I	3 15 3 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7		ENGR 390 ENGR 424 ENGR 538 ior Year ENGR 348 ENGR 349 ENGR 426 ENGR 444	Applied Electronics HVAC System Op & Mgmt Semester Credits: Extended Industrial Internship Strength of Materials Laboratory Transport Processes Laboratory Facilities Engineering Design II Engr Project Management	3 3 15 6 1 1 4 3
HIST 101 A ENGR 536 I ENGR 314 E ENGR 350 <sup>+</sup> A ENGR 423 F ENGR 425 F	American Civilization I Semester Credits: Industrial Internship II Alternate Internship U Engineering Economics Automation & Control Systems HVAC System Design	3 15 3 5 Choice pper Di 3 3 3 3		ENGR 390 ENGR 424 ENGR 538 ior Year ENGR 348 ENGR 349 ENGR 426 ENGR 444	Applied Electronics     HVAC System Op & Mgmt     Semester Credits:     Extended Industrial Internship     Strength of Materials Laboratory     Transport Processes Laboratory     Facilities Engineering Design II     Engr Project Management     American Civilization II	$\frac{3}{3}$ $\frac{3}{15}$ $\frac{6}{6}$ $\frac{1}{1}$ $\frac{1}{4}$ $\frac{3}{3}$
HIST 101 A ENGR 536 I ENGR 314 E ENGR 350 <sup>+</sup> A ENGR 423 F ENGR 425 F	American Civilization I Semester Credits: Industrial Internship II Alternate Internship U Engineering Economics Automation & Control Systems HVAC System Design Facilities Engineering Design I Engineering Elective	3 15 3 5 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7		ENGR 390 ENGR 424 ENGR 538 ior Year ENGR 348 ENGR 349 ENGR 426 ENGR 444	Applied Electronics     HVAC System Op & Mgmt     Semester Credits:     Extended Industrial Internship     Strength of Materials Laboratory     Transport Processes Laboratory     Facilities Engineering Design II     Engr Project Management     American Civilization II     Free Elective	$\frac{3}{3}$ $\frac{3}{15}$ $\frac{1}{15}$ $\frac{1}{1}$ $\frac{1}{4}$ $\frac{3}{3}$ $\frac{3}{3}$
HIST 101 A ENGR 536 I ENGR 314 E ENGR 350 <sup>+</sup> A ENGR 423 F ENGR 425 F	American Civilization I Semester Credits: Industrial Internship II Alternate Internship Uj Engineering Economics Automation & Control Systems HVAC System Design Facilities Engineering Design I	3 15 3 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7		ENGR 390 ENGR 424 ENGR 538 ior Year ENGR 348 ENGR 349 ENGR 426 ENGR 444	Applied Electronics     HVAC System Op & Mgmt     Semester Credits:     Extended Industrial Internship     Strength of Materials Laboratory     Transport Processes Laboratory     Facilities Engineering Design II     Engr Project Management     American Civilization II	$\frac{3}{3}$ $\frac{3}{15}$ $\frac{6}{6}$ $\frac{1}{1}$ $\frac{1}{4}$ $\frac{3}{3}$
HIST 101 A ENGR 536 I ENGR 314 E ENGR 350 <sup>+</sup> A ENGR 423 F ENGR 425 F	American Civilization I Semester Credits: Industrial Internship II Alternate Internship U Engineering Economics Automation & Control Systems HVAC System Design Facilities Engineering Design I Engineering Elective	3 15 3 5 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7		ENGR 390 ENGR 424 ENGR 538 ior Year ENGR 348 ENGR 349 ENGR 426 ENGR 444	Applied Electronics     HVAC System Op & Mgmt     Semester Credits:     Extended Industrial Internship     Strength of Materials Laboratory     Transport Processes Laboratory     Facilities Engineering Design II     Engr Project Management     American Civilization II     Free Elective	$\frac{3}{3}$ $\frac{3}{15}$ $\frac{1}{15}$ $\frac{1}{1}$ $\frac{1}{4}$ $\frac{3}{3}$ $\frac{3}{3}$
HIST 101 A ENGR 536 I ENGR 314 E ENGR 350 <sup>+</sup> A ENGR 423 F ENGR 425 F	American Civilization I Semester Credits: Industrial Internship II Alternate Internship U Engineering Economics Automation & Control Systems HVAC System Design Facilities Engineering Design I Engineering Elective	3 15 3 5 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7		ENGR 390 ENGR 424 ENGR 538 ior Year ENGR 348 ENGR 349 ENGR 426 ENGR 444	Applied Electronics     HVAC System Op & Mgmt     Semester Credits:     Extended Industrial Internship     Strength of Materials Laboratory     Transport Processes Laboratory     Facilities Engineering Design II     Engr Project Management     American Civilization II     Free Elective	$\frac{3}{3}$ $\frac{3}{15}$ $\frac{1}{15}$ $\frac{1}{1}$ $\frac{1}{4}$ $\frac{3}{3}$ $\frac{3}{3}$
HIST 101 A ENGR 536 I ENGR 314 E ENGR 350 <sup>+</sup> A ENGR 423 F ENGR 425 F	American Civilization I Semester Credits: Industrial Internship II Alternate Internship U Engineering Economics Automation & Control Systems HVAC System Design Facilities Engineering Design I Engineering Elective	3 15 3 5 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7		ENGR 390 ENGR 424 ENGR 538 ior Year ENGR 348 ENGR 349 ENGR 426 ENGR 444	Applied Electronics     HVAC System Op & Mgmt     Semester Credits:     Extended Industrial Internship     Strength of Materials Laboratory     Transport Processes Laboratory     Facilities Engineering Design II     Engr Project Management     American Civilization II     Free Elective     Semester Credits:	$\frac{3}{3}$ $\frac{3}{15}$ $\frac{1}{15}$ $\frac{1}{4}$ $\frac{4}{3}$ $\frac{3}{3}$ $\frac{3}{15}$

\* Students wishing to transfer to a Mechanical Engineering program at another SUNY campus should take this course.

## **B.E. in Marine Engineering with Engine License**

### **Fall Semester**

		LOW	er Div	ISIOII
	CHEM 121	General Chemistry I	3	
	CHEM 122	General Chemistry I Laboratory	1	
	ENGL 101	Freshman English I	3	
	ENGR 110 <sup>+</sup>	Intro to Engineering Practice	2	
	LEAD 101	Leadership/Maritime Experience	1	
	MATH 101	Calculus I	4	
L	PS 103	Water Safety & Survival	1	
L	PS 112 <sup>+</sup>	STCW Basic Training	2	
		Semester Credits:	17	

#### **Spring Semester**

Low	ver Div	vision - I	Fres	hman Year			
	3			ENGL 103	Freshman English II for Engineers	3	
	1			ENGR 100	Engineering Graphics	1	
	3			ENGR 120	Programming for Engineers	2	
	2		L	ENGR 540+	Introduction to Ship Systems	3	
•	1			MATH 102	Calculus II	4	
	4				Engineering Physics I	4	
	1			PHYS 104	Engineering Physics I Laboratory	0.5	
	2						
edits:	17				Semester Credits:	17.5	

ENGR 510 Summer Sea Term I 6 I

#### Lower Division - Sophomore Year

OR L

6

	ENGR 242	Statics	3				
L	ENGR 503+	Manufacturing Processes I	1				
L	ENGR 542	Ship Systems II	2				
	HUMN 201	World Literature & Culture I	3				
	MATH 211	Calculus III	4				
		Engineering Physics II	4				
	PHYS 203	Engineering Physics II Laboratory	0.5				
	Semester Credits:						

	CHEM 212	Materials Science I	3	
	or *ENGR 347	Strength of Materials	2	
	ENGR 244	Dynamics	3	
	ENGR 290	Circuit Analysis	3	
L	ENGR 504+	Manufacturing Processes II	1	
L	ENGR 541	Ship Systems I	2	
	HUMN 202	World Literature & Culture II	3	
	MATH 212	Differential Equations	4	
		Semester Credits:	19	

#### L ENGR 520 Summer Sea Term II

		τ	Upper D	oivisio
	ENGR 341	Fluid Mechanics	3	
	ENGR 344	Thermodynamics	3	
	ENGR 347	Strength of Materials	2	
	or * CHEM 212	Materials Science I	5	
	ENGR 380+	Intro to Electric Machinery	3	
L	ENGR 543+	Ship Systems III	3	
L	NAUT 308	Nautical Operations: Safety	2	
		Semester Credits	: 17	

L	ENGR 516	Engine License Seminar	0	
L	ENGR 530	Summer Sea Term III	5	
L	PS 412	Medical Care Provider	1	

r Divisio	on - J	Ju	nior Year			
			ENGR 345	Engineering Statistical Analysis	3	
			ENGR 348	Strength of Materials Laboratory	1	
			ENGR 351	Heat Transfer	3	
			ENGR 354+	Marine Engineering Design I	3	
			ENGR 390	Applied Electronics	3	
		L	ENGR 544	Ship Systems IV	4	

ENGR 521 Cadet Comm Vessel Shipping

Semester Credits: 17

6

			Upper L	<b>DIVISIO</b>
	ENGR 314	Engineering Economics	3	
L		Applied Naval Architecture	3	
	ENGR 423	HVAC System Design	3	
	or ENGR 454	Vibrations	5	
	ENGR 440*	Marine Engineering Design II	3	
	ENGR 453	Modern Concepts	3	
	HIST 101	American Civilization I	3	

## Semester Credits: 18

πт

#### **Division - Senior Year** ENGR 349 Transport Processes Laboratory 1 ENGR 350<sup>+</sup> Automation & Control Systems 3 3 ENGR 444 Engr Project Management ENGR 450 Marine Engineering Design III 4 ENGR 495 Marine Electrical Systems 3 HIST 102 American Civilization II 3 17

Semester Credits:

USCG License Exam:

Lower Division Credits:

Upper Division Credits:

License Credits (L in left column):

Total Credits: 158

83

75

42

\* Students wishing to transfer to a Mechanical Engineering program at another SUNY campus should take this course.

Courses in **bold type** are typically limited to the semester shown.

+ Students must register for both lecture and laboratory or recitation.

## **B.E. in Mechanical Engineering with Engine License**

#### Fall Semester

		I	lower Div	isio
	CHEM 121	General Chemistry I	3	
	CHEM 122	General Chemistry I Laboratory	1	
	ENGL 101	Freshman English I	3	
	ENGR 110+	Intro to Engineering Practice	2	
	LEAD 101	Leadership/Maritime Experience	1	
	MATH 101	Calculus I	4	
L	PS 103	Water Safety & Survival	1	
L	PS 112+	STCW Basic Training	2	
		Semester Credi	its: 17	

#### **Spring Semester**

		1 8	
resh	nman Year		
	ENGL 103	Freshman English II for Engineers	3
	ENGR 100	Engineering Graphics	1
	ENGR 120	Programming for Engineers	2
L	ENGR 540 <sup>+</sup>	Introduction to Ship Systems	3
	MATH 102	Calculus II	4
	PHYS 102	Engineering Physics I	4
	PHYS 104	Engineering Physics I Laboratory	0.5
		Semester Credits:	175

Semester Credits: 17.5

L ENGR 510 Summer Sea Term I 6

#### Lower Division - Sophomore Year

L EN HU	NGR 542 Shi	anufacturing Processes I ip Systems II orld Literature & Culture I brokes II	1 2 3		ENGR 244	Strength of Materials Dynamics Circuit Analysis	3
HU	JMN 201 Wo	orld Literature & Culture I	2 3				3
			3		ENGR 200	Circuit Analysis	2
MA	ATH 211 Ca	11 III			LINGK 270	Circuit Analysis	3
			4	L	ENGR 504+	Manufacturing Processes II	1
PH	HYS 201 Eng	ngineering Physics II	4	 L	ENGR 541	Ship Systems I	2
PH	HYS 203 Eng	ngineering Physics II Laboratory	0.5		HUMN 202	World Literature & Culture II	3
					MATH 212	Differential Equations	4
	-	Semester Credits:	17.5			Semester Credits:	19

L	ENGR 520 Summer Sea Term II	6		OR	L	ENGR 521 Cadet Comm Vessel Shipping	6	
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Upper	Division	- Junior	Year
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ENGR 344	Thermodynamics	3		ENG
ENGR 347	Strength of Materials	3		ENG
* CHEM 212	Materials Science I	3		ENG
ENGR 380+	Intro to Electric Machinery	3		ENG
ENGR 543+	Ship Systems III	3		ENG
HIST 101	American Civilization I	3	L	ENG
NAUT 308	Nautical Operations: Safety	2		
	Semester Credits:	17		

	ENGR 312	Machine Design	3	
	ENGR 341	Fluid Mechanics	3	
	ENGR 345	Engineering Statistical Analysis	3	
	ENGR 351	Heat Transfer	3	
	ENGR 390	Applied Electronics	3	
L	ENGR 544	Ship Systems IV	4	
		Semester Credits:	19	

L	ENGR 516	Engine License Seminar	0	
L	ENGR 530	Summer Sea Term III	5	
L	PS 412	Medical Care Provider	1	

or

L

L

ENGR 550	Summer Sea Term III		5			
PS 412	Medical Care Provider		1			
		U	pper D	<u>Division</u>	- Se	nior Year
ENGR 348	Strength of Materials Laboratory		1			EN

	ENGR 348	Strength of Materials Laboratory	1	
L	ENGR 371	Applied Naval Architecture	3	
	ENGR 418+	Mechanical Engr Design I	4	
	ENGR 454	Vibrations	3	
	ENGR 456	Computer Aided Engineering	3	
	HIST 102	American Civilization II	3	
Semester Credits:			17	

-	Semo	1 041			
		ENGR 314	Engineering Economics	3	
		ENGR 349	Transport Processes Laboratory	1	
		ENGR 354+	Marine Engineering Design I	3	
		ENGR 419+	Mechanical Engr Design II	4	
			Engineering Elective	3	
			Free Elective	3	
			Semester Credits:	17	

USCG License Exam:

Lower Division Credits:

Upper Division Credits:

License Credits (L in left column):

Total Credits: 159

83

76

42

* Students wishing to transfer to a Mechanical Engineering program at another SUNY campus should take this course.
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Courses in **bold type** are typically limited to the semester shown.

## **B.E. in Mechanical Engineering with Internship**

#### **Fall Semester**

### Lower Division - Freshman Year

Lower Division - Sophomore Year

**Spring Semester** 

CHEM 121	General Chemistry I	3	
CHEM 122	General Chemistry I Laboratory	1	
ENGL 101	Freshman English I	3	
ENGR 110+	Intro to Engineering Practice	2	
LEAD 101	Leadership/Maritime Experience	1	
MATH 101	Calculus I	4	
PE 100	Swimming and Lifetime Fitness	1	
	Semester Credits:	15	

	ENGL 103	Freshman English II for Engineers	3	
	ENGR 100	Engineering Graphics	1	
		Programming for Engineers	2	
	MATH 102	Calculus II	4	
	PHYS 102	Engineering Physics I	4	
	PHYS 104	Engineering Physics I Laboratory	0.5	
	147			

Semester Credits: 14.5

ENGR 242 Statics		3		CHEM 212	Materials Science I	2	
ENGR 503 <sup>+</sup> Manufactur	ring Processes I	1		or *ENGR 347	Strength of Materials	3	
HUMN 201 World Liter	rature & Culture I	3		ENGR 244	Dynamics	3	
MATH 211 Calculus II	I	4		ENGR 290	Circuit Analysis	3	Τ
PHYS 201 Engineering	g Physics II	4		HUMN 202	World Literature & Culture II	3	
PHYS 203 Engineering	g Physics II Laboratory	0.5		MATH 212	Differential Equations	4	
	Semester Credits:	15.5			Semester Credits:	16	
ENGR 526 Industrial	Internship I	3					
	U	pper Di	ivision - J	unior Year			
ENCP 344 Thermodyn	amics	3		ENCD 312	Machina Dosign	3	Т

	U	pper r	111131
ENGR 344	Thermodynamics	3	
ENGR 347	Strength of Materials	2	
or * CHEM 212	Materials Science I	3	
ENGR 380+	Intro to Electric Machinery	3	
HIST 101	American Civilization I	3	
	Free Elective	3	
	Semester Credits:	15	

<b>ENGR 536</b> Industrial Internship II 3	
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Alternate Internship Choice:

ENGR 312	Machine Design	3	
ENGR 341	Fluid Mechanics	3	
ENGR 345	Engineering Statistical Analysis	3	
ENGR 351	Heat Transfer	3	
	Electrical Engineering Elective	3	
	Semester Credits:	15	

ENGR 538 Extended Industrial Internship 6	6	<b>ENGR 538</b>	
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	U	pper r	11113
ENGR 418+	Mechanical Engr Design I	4	
ENGR 454	Vibrations	3	
ENGR 456	<b>Computer-Aided Engineering</b>	3	
HIST 102	American Civilization II	3	
	Engineering Elective	3	
	Semester Credits:	16	

50	inor rear			
	ENGR 314	Engineering Economics	3	
	ENGR 348	Strength of Materials Laboratory	1	
	ENGR 349	Transport Processes Laboratory	1	
	ENGR 354+	Marine Engineering Design I	3	
	ENGR 419+	Mechanical Engr Design II	4	
		Engineering Elective	3	
-		G ( 11)	1.5	

Semester Credits: 15

Lower Division Credits:	
Upper Division Credits:	
Total Credits:	128

**Electrical Engineering Electives:** 

ENGR 383 Signals & Systems

ENGR 390 Applied Electronics

ENGR 396 Machine Learning

ENGR 398 Control System Theory

ENGR 494 Introduction to Renewable Energy Resources

\* Students wishing to transfer to a Mechanical Engineering program at another SUNY campus should take this course.

Courses in **bold type** are typically limited to the semester shown.

<sup>+</sup> Students must register for both lecture and laboratory or recitation.

**Upper Division - Senior Year** 

:	ENGR 538	Extended	Industria

## **B.E. in Naval Architecture with Deck License**

#### **Fall Semester**

#### Lower Division - Freshman Year

	CHEM 121	General Chemistry I	3	
	CHEM 122	General Chemistry I Laboratory	1	
	ENGL 101	Freshman English I	3	
	ENGR 110 <sup>+</sup>	Intro to Engineering Practice	2	
	LEAD 101	Leadership/Maritime Experience	1	
	MATH 101	Calculus I	4	
L	PS 103	Water Safety & Survival	1	
L	PS 112+	STCW Basic Training	2	
		Semester Credits:	17	

	ENGL 103	Freshman English II for Engineers	3	
	ENGR 100	Engineering Graphics	1	
	ENGR 120	Programming for Engineers	2	
	MATH 102	Calculus II	4	
	PHYS 102	Engineering Physics I	4	
	PHYS 104	Engineering Physics I Laboratory	0.5	
L	NAUT 102	Intro to Vessel Ops & Seamanship	1	
L	NAVG 112	Navigation I: Intro to Navigation	4	
		Semester Credits:	19.5	

Spring Semester

#### MT 510 Summer Sea Term I 6 L

Lower Division - Sophomore Year								
ENGR 242	Statics	3			CHEM 212	Materials Science I	2	
HUMN 201	World Literature & Culture I	3			or *ENGR 347	Strength of Materials	3	
MATH 211	Calculus III	4			ENGR 244	Dynamics	3	
METE 201+	Meteorology for Mariners	3			ENGR 290	Circuit Analysis	3	
PHYS 201	Engineering Physics II	4			HUMN 202	World Literature & Culture II	3	
PHYS 203	Engineering Physics II Laboratory	0.5			MATH 212	Differential Equations	4	
				L	NAVG 212	Navigation II: Oceans	4	
	Semester Credits:	17.5				Semester Credits:	20	

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MT 520 Summer Sea Term II T

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## **Upper Division - Junior Year**

OR

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	ENGR 347	Strength of Materials	3	
	or * CHEM 212	Materials Science I	3	
L	ENGR 363	Ship Statics	3	
	ENGR 365+	Ship Form and Graphics	3	
	ENGR 380+	Intro to Electric Machinery	3	
L	NAUT 314	Rules of the Road	2	
L	NAUT 315	Intro to Integrated Bridge Systems	3	
		Semester Credits:	17	

	ENGR 341	Fluid Mechanics	3	
	ENGR 344	Thermodynamics	3	
	ENGR 366+	Ship Structure	4	
	ENGR 368+	Ship Design I	4	
L	NAUT 308	Nautical Operations: Safety	2	
L	NAVG 312	Intgrtd Bridge Sys & Voyage Plannin	4	
		Semester Credits:	20	

MT 521 Cadet Comm Vessel Shipping

\* Students wishing to transfer to a Mechanical Engineering program at another SUNY campus should take this course.

			Upper I	Divisio
	ENGR 345	Engineering Statistical Analysis	3	
	ENGR 461*	Ship Design II	4	
	ENGR 462+	Ship Resistance and Propulsion	3	
	ENGR 472+	Sailboat Principles & Design	3	
	or	Engineering Elective	5	
	HIST 101	American Civilization I	3	
L	MT 321	Intro to Cargo Ops & Stability	3	
		Semester Credits	s: 19	

#### on - Senior Year

	ENGR 348	Strength of Materials Laboratory	1	
	ENGR 354+	Marine Engineering Design I	3	
	ENGR 471+	Ship Design III	4	
	ENGR 473	Ship Dynamics	3	
	ENGR 476+	Power Boat Principles & Design	2	
	or	Engineering Elective	3	
L	MT 322	Marine Cargo Operations	3	
		Somastar Cradita	17	

Semester Credits: 17

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All Naval Architecture students must take at least one of the Boat Principles & Design courses ENGR 472/476.

9th Semester				USCG License Exam:	
	HIST 102	American Civilization II	3		
L	MT 412	Deck License Seminar	4	Lower Division Credits:	86
L	MT 426+	Maritime Communications	3	Upper Division Credits:	95
L	NAUT 416+	Bridge Resource Mgmt (Unltd Lic)	3	License Credits (L in left column):	
		Free Elective	3	Total Credits:	181
		Semester Credits:	16		

Note: Though not required for your license, students who plan to sail are strongly advised to take MT 435 (Maritime Security) in addition to the courses above. Courses in **bold type** are typically limited to the semester shown. + Students must register for both lecture and laboratory or recitation.

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MT 530 Summer Sea Term III 5

PS 412 Medical Care Provider

## B.E. in Naval Architecture with Engine License

#### **Fall Semester**

#### Lower Division - Freshman Year

	CHEM 121	General Chemistry I	3	
	CHEM 122	General Chemistry I Laboratory	1	
	ENGL 101	Freshman English I	3	
	ENGR 110 <sup>+</sup>	Intro to Engineering Practice	2	
	LEAD 101	Leadership/Maritime Experience	1	
	MATH 101	Calculus I	4	
L	PS 103	Water Safety & Survival	1	
L	PS 112 <sup>+</sup>	STCW Basic Training	2	
		Semester Credits:	17	

	ENGL 103	Freshman English II for Engineers	3	
	ENGR 100	Engineering Graphics	1	
	ENGR 120	Programming for Engineers	2	
L	ENGR 540*	Introduction to Ship Systems	3	
	MATH 102	Calculus II	4	
	PHYS 102	Engineering Physics I	4	
	PHYS 104	Engineering Physics I Laboratory	0.5	
		Semester Credits:	17.5	

**Spring Semester** 

#### ENGR 510 Summer Sea Term I L 6

	ENGR 242	Statics	3		CHEM 212	Materials Science I	2	
L		Manufacturing Processes I	1		or *ENGR 347	Strength of Materials	3	
L	ENGR 542	Ship Systems II	2		ENGR 244	Dynamics	3	
	HUMN 201	World Literature & Culture I	3		ENGR 290	Circuit Analysis	3	
	MATH 211	Calculus III	4	L		Manufacturing Processes II	1	
	PHYS 201	Engineering Physics II	4	L		Ship Systems I	2	
	PHYS 203	Engineering Physics II Laboratory	0.5		HUMN 202	World Literature & Culture II	3	
					MATH 212	Differential Equations	4	
		Semester Credits:	17.5			Semester Credits:	19	

Lower Division - Sophomore Year

L	ENGR 520 Summer Sea Term II	6		OR L	ENGR 521	<b>Cadet Comm</b>	Vessel Shi
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#### **Upper Division - Junior Year**

		0	pper 2	
	ENGR 347	Strength of Materials	3	
	or * CHEM 212	Materials Science I		
L	ENGR 363	Ship Statics	3	
	ENGR 365+	Ship Form and Graphics	3	
	ENGR 380+	Intro to Electric Machinery	3	
L	ENGR 543+	Ship Systems III	3	
	HIST 101	American Civilization I	3	
		Semester Credits:	18	

L	ENGR 516	Engine License Seminar	0	
L	ENGR 530	Summer Sea Term III	5	
L	PS 412	Medical Care Provider	1	

	ENGR 341	Fluid Mechanics	3		
	ENGR 344 Thermodynamics				
	ENGR 366+	Ship Structure	4		
	ENGR 368+	Ship Design I	4		
L	ENGR 544	Ship Systems IV	4		
L	NAUT 308	Nautical Operations: Safety	2		
		Semester Credits:	20		

#### **Upper Division - Senior Year**

	11					
ENGR 345 Engineering Statistica	al Analysis 3		ENGR 348	Strength of Materials Laboratory	1	
ENGR 390 Applied Electronics	3		ENGR 354+	Marine Engineering Design I	3	
ENGR 461 <sup>+</sup> Ship Design II	4		ENGR 471*	Ship Design III	4	
ENGR 462 <sup>+</sup> Ship Resistance and	Propulsion 3		ENGR 473	Ship Dynamics	3	
ENGR 472 <sup>+</sup> Sailboat Principles &	& Design		ENGR 476 <sup>+</sup>	Power Boat Principles & Design	2	
or Engineering Elective	5		or	Engineering Elective	3	
			HIST 102	American Civilization II	3	
Se	emester Credits: 16			Semester Credits:	17	

All Naval Architecture students must take at least one of the Boat Principles & Design courses ENGR 472/476.

USCG License Exam: Lower Division Credits: 83 Upper Division Credits: 77 License Credits (L in left column):

42 160 Total Credits:

\* Students wishing to transfer to a Mechanical Engineering program at another SUNY campus should take this course.

Courses in **bold type** are typically limited to the semester shown.

+ Students must register for both lecture and laboratory or recitation.

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## B.E. in Naval Architecture with Internship

### Fall Semester

Lower	Division	-	Freshman	Yea

#### **Spring Semester**

	101		
CHEM 121	General Chemistry I	3	
CHEM 122	General Chemistry I Laboratory	1	
ENGL 101	Freshman English I	3	
ENGR 110+	Intro to Engineering Practice	2	
LEAD 101	Leadership/Maritime Experience	1	
MATH 101	Calculus I	4	
PE 100	Swimming and Lifetime Fitness	1	
	Semester Credits:	15	

rit	siinan i'tai			
	ENGL 103	Freshman English II for Engineers	3	
	ENGR 100	Engineering Graphics	1	
	ENGR 120	Programming for Engineers	2	
	MATH 102	Calculus II	4	
	PHYS 102	Engineering Physics I	4	
	PHYS 104	Engineering Physics I Laboratory	0.5	
		Somastar Cradita	145	

Semester Credits: 14.5

	Lov	ver Divi	ision - So	phomore Year
ENGR 242	Statics	3		CHEM
HUMN 201	World Literature & Culture I	3		or *ENGF
MATH 211	Calculus III	4		ENGR
PHYS 201	Engineering Physics II	4		ENGR
PHYS 203	Engineering Physics II Laboratory	0.5		HUMN
				MATH
	Semester Credits:	14.5		

ENGR 526 Industrial Internship I 3

CHEM 212	Materials Science I	3	
or *ENGR 347	Strength of Materials	3	
ENGR 244	Dynamics	3	
ENGR 290	Circuit Analysis	3	
HUMN 202	World Literature & Culture II	3	
MATH 212	Differential Equations	4	
	Semester Credits:	16	

	Ŭ	Jpper D	oivision	- Jun	ior Year
ENGR 347	Strength of Materials	3			EN
or * CHEM 212	Materials Science I	3			EN
ENGR 363	Ship Statics	3			EN
ENGR 365+	Ship Form and Graphics	3			ENC
ENGR 380+	Intro to Electric Machinery	3			ENG
HIST 101	American Civilization I	3			
	Semester Credits:	15			

ENGR 536 Industrial Internship II 3

Alternate Internship Choice:

ENGR 341	Fluid Mechanics	3	
ENGR 344	Thermodynamics	3	
ENGR 348	Strength of Materials Laboratory	1	
ENGR 366+	Ship Structure	4	
ENGR 368+	Ship Design I	4	
	Semester Credits:	15	

Upper	Division	-	Senior	Year

ENGR 345	Engineering Statistical Analysis	3	
ENGR 461+	Ship Design II	4	
ENGR 462+	Ship Resistance and Propulsion	3	
ENGR 472+	Sailboat Principles & Design	3	
or	Engineering Elective	3	
	Engineering Elective	3	
	Semester Credits:	16	

	Marine Engineering Design I	3	
	Ship Design III	4	
ENGR 473	Ship Dynamics	3	
ENGR 476+	Power Boat Principles & Design	3	
or	Engineering Elective	3	
HIST 102	American Civilization II	3	
	Semester Credits:	16	

All Naval Architecture students must take at least one of the Boat Principles & Design courses ENGR 472/476.

63 Lower Division Credits: Upper Division Credits: 65 Total Credits: 128

\* Students wishing to transfer to a Mechanical Engineering program at another SUNY campus should take this course.

+ Students must register for both lecture and laboratory or recitation.

Courses in **bold type** are typically limited to the semester shown.

Semester Credits:	14.5	
and the T	2	

## B.S. in International Transportation and Trade with Deck License

### Fall Semester

#### Divisio Frech **N**7.

### Spring Semester

		Fall Semester						Spring Semester	
		Low	ver Di	vision -	Fre	shn	nan Year		
		Computer Laboratory	1				ENGL 102	Freshman English II	3
	ENGL 101	Freshman English I	3				GBEC 121	Macroeconomics	3
	GBUS 100	Intro to Business & Economics	3				HIST 102	American Civilization II	3
	HIST 101	American Civilization I	3				MATH 251	Statistics	3
	LEAD 101	Leadership/Maritime Experience	1		L	,	MT 250	Ship Construction & Stability	2
	MATH 111	Applied Calculus I	4		L	,	NAUT 102	Intro to Vessel Ops & Seamanship	1
	PS 103	Water Safety & Survival	1		L	,	NAVG 112	Navigation I: Intro to Navigation	4
		STCW Basic Training	2						
		Semester Credits:	18		L			Semester Credits:	19
				1					
	MT 510	Summer Sea Term I	6						
		1		·					
		Low	er Div	vision - S	Sopl	hon	nore Year		
	GBAC 311	Financial Accounting	3				GBAC 315	Managerial Accounting	3
		Microeconomics	3					Admiralty Law	3
	GBLW 431	Business Law	3					Fundamentals of Marketing	3
		World Literature & Culture I	3	<u> </u>				World Literature & Culture II	3
		Intro to Cargo Ops & Stability	3		L			Meteorology for Mariners	3
		Rules of the Road	2		L	_		Navigation II: Oceans	4
	10101011	Semester Credits:	17	<u> </u>		<u> </u>		Semester Credits:	19
			17	1					.,
	MT 520	Summer Sea Term II	6	Ok	S L		MT 521	Cadet Comm Vessel Shipping	6
				1					
		U	pper I	Division	- Jı	unia	or Year		
	ENGL 452	Technical Writing	3					Financial Management	3
		Intl. Economics and Finance	3					Economic Geography	3
		Transportation Systems	3	<u> </u>				Business of Shipping	3
		Marine Cargo Operations	3	<u> </u>	L			Nautical Operations: Safety	2
		Intro to Integrated Bridge Systems	3	<u> </u>	L	_		Intgrtd Bridge Sys & Voyage Plannin	4
		General Physics I	3	<u> </u>	Ľ		10110 512	LAS Elective	3
		General Physics I Lab	0.5	<u> </u>					5
	11115 215	Semester Credits:		<u> </u>				Semester Credits:	18
		Semester Credits.	16.5					Semester Credits.	10
	MT 520	Summer Sea Term III	5						I
		Medical Care Provider	3	<u> </u>					l
	PS 412	Medical Care Provider	1						
		I.	nnor I	Division	S	onic	v Voor		
1	CDI W 425		-		- 30			Seminar: Transport. Economics	
		Environmental Law & Policy	3	<u>}</u>	-	-			3
		Organizational Management	3	<u> </u>	-	+		Seminar: Strategy and Policy	3
		Marine Insurance		┼──	-	+		International Logistics	
		Deck License Seminar	4	<b> </b>		-		Import/Export & Traffic Mgt.	3
	M1 426	Maritime Communications	3	<b> </b>	-	_		International Business	3
<u> </u>		International Studies Humanities Elective	3		<u> </u>	_		Operations Research	3
			10	<u> </u>	L	,	NAUT 416 <sup>+</sup>	Bridge Resource Mgmt (Unltd Lic)	3
		Semester Credits:	19					Semester Credits:	18
	International Stud	lies Humanities Electives						USCG License Exam:	
	ENGL 416	Literature of the Sea						Lower Division Credits:	85
	ENGL 418	Contemporary Literature						Upper Division Credits:	79.5
	ENGL 470	Major British Authors						License Credits (L in left column):	62
	HIST 401-02	Topics in European Civilization I-II						Total Credits:	164.5
	HIST 418	Hist of American Foreign Policy							
	HIST 421	Vietnam and America							
	HIST 425	History of Technology							

HIST 426 Twentieth Century Technology

NVSC 102 Sea Power and Maritime Affairs

NVSC 311 Evolution of Warfare

Note: Though not required for your license, students who plan to sail are strongly advised to take MT 435 (Maritime Security) in addition to the courses above.

## B.S. in International Transportation and Trade with Internship

#### **Fall Semester**

			151011
CS 101	Computer Laboratory	1	
ENGL 101	Freshman English I	3	
GBUS 100	Intro to Business & Economics	3	
LEAD 101	Leadership/Maritime Experience	1	
MATH 090	Intro to College Mathematics	4	
or MATH 111	Applied Calculus I	4	
	GenEd: Natural Science	3	
	Semester Credits	: 15	

Lower Division - Freshman Yea

#### **Spring Semester**

Fres	shman Year			
	ENGL 102	Freshman English II	3	
	GBEC 121	Macroeconomics	3	
	GBMG 345	Fundamentals of Marketing	3	
	HIST 101	American Civilization I	3	
	MATH 251	Statistics	3	
		Someoston Cuadita	15	

Semester Credits: 15

	L	ower Divis	sion - Sop	ohomore Year
ENGL 452	Technical Writing	3		GBAC
GBAC 311	Financial Accounting	3		GBLW
GBEC 122	Microeconomics	3		HUMN
HIST 102	American Civilization II	3		
HUMN 201	World Literature & Culture I	3		
	Semester Credi	ts: 15		

	L				
		GBAC 315	Managerial Accounting	3	
		GBLW 431	Business Law	3	
Ī		HUMN 202	World Literature & Culture II	3	
			Free Elective	3	
Ī			LAS Elective	3	
			Semester Credits:	15	

#### **Upper Division - Junior Year**

GBEC 424	Intl. Economics and Finance	3				GBEC 427	Financial Management	3	
GBLW 433	Admiralty Law	3				GBEC 428	Economic Geography	3	
GBMG 341	Organizational Management	3				GBTT 252	Business of Shipping	3	
GBTT 251	Transportation Systems	3					International Studies Elective	3	
	LAS Elective	3					LAS Elective	3	
	Semester Credits:	15		-			Semester Credits:	15	
GBUS 525	ITT Internship / Work Experience	6	0	)R		GBUS 526	ITT Study Abroad	6	

OBUS 525 ITT Internship / work Experience 0 0/0/ OBUS 520 ITT Study Abroad		6	OR		GBUS 526 ITT Study Abroad	(
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### **Upper Division - Senior Year**

oppor Division Senior Few								
GBLW 435	Environmental Law & Policy	3			GBEC 429	Seminar: Transport. Economics	2	
GBTT 451	Marine Insurance	3			or GBMG 440	Seminar: Strategy and Policy	3	
GBTT 453	Import/Export & Traffic Mgt.	3			GBTT 351	International Logistics	3	
GBTT 457	Port and Terminal Operations	3			GBUS 300	International Business	3	
	International Studies Elective	3			MATH 446	Operations Research	3	
						Phys Ed Elective	1	
	Semester Credits:	15				Semester Credits:	13	

Lower Division Credits: 60

Upper Division Credits: 64

Total Credits: 124

#### International Studies Electives

At leas	t one of these two electives mu	st be chosen from the left column (International Studies Humanities electives).	
Diet die	Literature of the Sea	GBLW 437 International Law	

ENGL 416	Literature of the Sea	OBL w 457 International Law
ENGL 418	Contemporary Literature	GBMG 442 Intl Marketing Management
ENGL 470	Major British Authors	GBMG 443 Cross-Cultural Management
HIST 401-02	Topics in European Civilization I-II	GBTT 460 Principles of Global Supply Chain Security
HIST 418	Hist of American Foreign Policy	GBUS 400 Maritime Cyber Security
HIST 421	Vietnam and America	GBUS 526 ITT Study Abroad*
HIST 425	History of Technology	MT 408 International Safety Management
HIST 426	Twentieth Century Technology	MT 435 Maritime Security
NVSC 102	Sea Power and Maritime Affairs	* Other study abroad courses
NVSC 311	Evolution of Warfare	to be evaluated by Dept Chair
	Foreign language courses	

Courses in **bold type** are typically limited to the semester shown.

<sup>+</sup> Students must register for both lecture and laboratory or recitation.

## B.S. in Marine Environmental Science with Deck License, Marine Biology Minor

T		Low	er Divi	sion - Fres	hman Year		
	BIO 201 <sup>+</sup> G	General Biology I	4			General Biology II	4
		omputer Laboratory	1			Freshman English II	3
		reshman English I	3			Applied Calc II (or MATH 102)	3
		ntro to Environmental Science	3	L		Intro to Vessel Ops & Seamanship	1
		eadership/Maritime Experience	1	L		Navigation I: Intro to Navigation	4
		pplied Calc I (or MATH 101)	4			General Oceanography	3
,		TCW Basic Training	2			General Oceanography Lab	1
<u> </u>	10112 5			L		Water Safety & Survival	1
		Semester Credits:	18		15 105	Semester Credits:	20
	MT 510 S	ummer Sea Term I	6				
		Low	er Divis	sion - Soph	omore Year		
Ι	CHEM 121 G	eneral Chemistry I	3		BIO 210	Ecology	3
$\vdash$		eneral Chemistry I Laboratory	1	_		General Chemistry II	3
+		merican Civilization I	3	—		General Chemistry II Laboratory	1
+		Vorld Literature & Culture I	3	-  -		American Civilization II	3
$\vdash$		Intervalue & Culture I	3	_		World Literature & Culture II	3
		hip Construction & Stability	2	L		Marine Cargo Operations	3
_		eneral Physics I	3	L		Navigation II: Oceans	4
_		eneral Physics I Lab	0.5	L	NAVO 212	Navigation II. Oceans	4
	FIIIS 215 U	Semester Credits:	18.5			Semester Credits:	20
-							
,	MT 520 S	ummer Sea Term II	6	OR L	MT 521	Cadet Comm Vessel Shipping	6
	DIO 215 M		-	vision - Ju			2
)		Iarine Biology	3	(1)		Ichthyology	3
	CHEM 311 E	nvironmental ( 'hemistrv	3		CHEM 321	Organic Chemistry	
-		-					3
	CHEM 312 E	nvironmental Chemistry Lab	1		CHEM 322	Organic Chemistry Laboratory	1
	CHEM 312 E MATH 251 St	nvironmental Chemistry Lab tatistics	1 3		CHEM 322 ES 303	Organic Chemistry Laboratory GIS	1
	CHEM 312 E MATH 251 St MT 321 In	nvironmental Chemistry Lab tatistics ntro to Cargo Ops & Stability	1 3 3		CHEM 322 ES 303 NAUT 308	Organic Chemistry Laboratory GIS Nautical Operations: Safety	1 3 2
-	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R	nvironmental Chemistry Lab tatistics ntro to Cargo Ops & Stability ules of the Road	1 3 3 2		CHEM 322 ES 303 NAUT 308	Organic Chemistry Laboratory GIS Nautical Operations: Safety Intgrtd Bridge Sys & Voyage Plannin	1 3 2 4
	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R	nvironmental Chemistry Lab tatistics ntro to Cargo Ops & Stability	1 3 3		CHEM 322 ES 303 NAUT 308	Organic Chemistry Laboratory GIS Nautical Operations: Safety	1 3 2
,	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R	nvironmental Chemistry Lab tatistics ntro to Cargo Ops & Stability ules of the Road	1 3 3 2		CHEM 322 ES 303 NAUT 308	Organic Chemistry Laboratory GIS Nautical Operations: Safety Intgrtd Bridge Sys & Voyage Plannin	1 3 2 4
	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III	1 3 3 2 3		CHEM 322 ES 303 NAUT 308	Organic Chemistry Laboratory GIS Nautical Operations: Safety Intgrtd Bridge Sys & Voyage Plannin MES Elective	1 3 2 4 3
,	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits:	1 3 2 3 18		CHEM 322 ES 303 NAUT 308	Organic Chemistry Laboratory GIS Nautical Operations: Safety Intgrtd Bridge Sys & Voyage Plannin MES Elective	1 3 2 4 3
,	CHEM 312     E       MATH 251     St       MT 321     In       NAUT 314     R       NAUT 315     In       MT 530     St       PS 412     M	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III fedical Care Provider	1 3 2 3 18 5 1 pper Di	vision - Se	CHEM 322 ES 303 NAUT 308 NAVG 312	Organic Chemistry Laboratory GIS Nautical Operations: Safety Intgrtd Bridge Sys & Voyage Plannin MES Elective Semester Credits:	1 3 2 4 3 19
r r	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St PS 412 M BIO 320 <sup>+</sup> In	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III Medical Care Provider U nvertebrate Zoology	1 3 2 3 18 5 1 5 1 9per Di 4		CHEM 322 ES 303 NAUT 308 NAVG 312 nior Year BIO 416	Organic Chemistry Laboratory GIS Nautical Operations: Safety Intgrtd Bridge Sys & Voyage Plannin MES Elective Semester Credits: Fisheries Science	1 3 2 4 3 19 3
r r	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St PS 412 M BIO 320 <sup>+</sup> In ES 451 <sup>+</sup> F	nvironmental Chemistry Lab tatistics ntro to Cargo Ops & Stability ules of the Road ntro to Integrated Bridge Systems Semester Credits: ummer Sea Term III Iedical Care Provider U nvertebrate Zoology ield Methods in Environ. Science	1 3 2 3 18 5 1 5 1 9per Di 4 4 4	vision - Se	CHEM 322 ES 303 NAUT 308 NAVG 312 nior Year BIO 416 ES 430	Organic Chemistry Laboratory GIS Nautical Operations: Safety Intgrtd Bridge Sys & Voyage Plannin MES Elective Semester Credits: Fisheries Science Environmental Impact Assessment	1 3 2 4 3 19 19 3 3 3
	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St PS 412 M BIO 320 <sup>+</sup> In ES 451 <sup>+</sup> F GEOL 301 G	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III fedical Care Provider Unvertebrate Zoology ield Methods in Environ. Science General Geology	1 3 2 3 18 5 1 5 1 9per Di 4 4 3	vision - Se	CHEM 322 ES 303 NAUT 308 NAVG 312 nior Year BIO 416 ES 430 GBLW 435	Organic Chemistry Laboratory     GIS   Nautical Operations: Safety     Intgrtd Bridge Sys & Voyage Plannin     MES Elective     Semester Credits:     Fisheries Science     Environmental Impact Assessment     Environmental Law & Policy	$\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{19}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$
	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St PS 412 M BIO 320 <sup>+</sup> In ES 451 <sup>+</sup> F GEOL 301 G MT 412 D	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III fedical Care Provider Unvertebrate Zoology ield Methods in Environ. Science General Geology Deck License Seminar	1 3 2 3 18 5 1 5 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	vision - Se	CHEM 322 ES 303 NAUT 308 NAVG 312 nior Year BIO 416 ES 430 GBLW 435 NAUT 416 <sup>+</sup>	Organic Chemistry Laboratory     GIS     Nautical Operations: Safety     Intgrtd Bridge Sys & Voyage Plannin     MES Elective     Semester Credits:     Fisheries Science     Environmental Impact Assessment     Environmental Law & Policy     Bridge Resource Mgmt (Unltd Lic.)	$\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{4}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$
, , , ,	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St PS 412 M BIO 320 <sup>+</sup> In ES 451 <sup>+</sup> F GEOL 301 G MT 412 D	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III fedical Care Provider Unvertebrate Zoology ield Methods in Environ. Science General Geology	1 3 2 3 18 5 1 5 1 9per Di 4 4 3	vision - Se	CHEM 322 ES 303 NAUT 308 NAVG 312 nior Year BIO 416 ES 430 GBLW 435 NAUT 416 <sup>+</sup>	Organic Chemistry Laboratory     GIS     Nautical Operations: Safety     Intgrtd Bridge Sys & Voyage Plannin     MES Elective     Semester Credits:     Fisheries Science     Environmental Impact Assessment     Environmental Law & Policy     Bridge Resource Mgmt (Unltd Lic.)     Estuaries & Coastal Processes	$\frac{1}{3}$ $\frac{2}{2}$ $\frac{4}{4}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$
	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St PS 412 M BIO 320 <sup>+</sup> In ES 451 <sup>+</sup> F GEOL 301 G MT 412 D	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III fedical Care Provider Unvertebrate Zoology ield Methods in Environ. Science General Geology beck License Seminar faritime Communications	1 3 2 3 18 5 1 5 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	vision - Se	CHEM 322 ES 303 NAUT 308 NAVG 312 nior Year BIO 416 ES 430 GBLW 435 NAUT 416 <sup>+</sup>	Organic Chemistry Laboratory     GIS     Nautical Operations: Safety     Intgrtd Bridge Sys & Voyage Plannin     MES Elective     Semester Credits:     Fisheries Science     Environmental Impact Assessment     Environmental Law & Policy     Bridge Resource Mgmt (Unltd Lic.)     Estuaries & Coastal Processes     MES Elective	$\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{4}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$
	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St PS 412 M BIO 320 <sup>+</sup> In ES 451 <sup>+</sup> F GEOL 301 G MT 412 D	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III fedical Care Provider Unvertebrate Zoology ield Methods in Environ. Science General Geology Deck License Seminar	1 3 2 3 18 5 1 5 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	vision - Se	CHEM 322 ES 303 NAUT 308 NAVG 312 nior Year BIO 416 ES 430 GBLW 435 NAUT 416 <sup>+</sup>	Organic Chemistry Laboratory     GIS     Nautical Operations: Safety     Intgrtd Bridge Sys & Voyage Plannin     MES Elective     Semester Credits:     Fisheries Science     Environmental Impact Assessment     Environmental Law & Policy     Bridge Resource Mgmt (Unltd Lic.)     Estuaries & Coastal Processes	$\frac{1}{3}$ $\frac{2}{4}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$
	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St PS 412 M BIO 320 <sup>+</sup> In ES 451 <sup>+</sup> F GEOL 301 G MT 412 D	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III fedical Care Provider Unvertebrate Zoology ield Methods in Environ. Science General Geology beck License Seminar faritime Communications	1 3 2 3 18 5 1 5 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	vision - Se	CHEM 322 ES 303 NAUT 308 NAVG 312 nior Year BIO 416 ES 430 GBLW 435 NAUT 416 <sup>+</sup>	Organic Chemistry Laboratory     GIS     Nautical Operations: Safety     Intgrtd Bridge Sys & Voyage Plannin     MES Elective     Semester Credits:     Fisheries Science     Environmental Impact Assessment     Environmental Law & Policy     Bridge Resource Mgmt (Unltd Lic.)     Estuaries & Coastal Processes     MES Elective	$\frac{1}{3}$ $\frac{2}{4}$ $\frac{4}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$
	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St PS 412 M BIO 320 <sup>+</sup> In ES 451 <sup>+</sup> F GEOL 301 G MT 412 D	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III fedical Care Provider Unvertebrate Zoology ield Methods in Environ. Science General Geology beck License Seminar faritime Communications	1 3 2 3 18 5 1 5 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	vision - Se	CHEM 322 ES 303 NAUT 308 NAVG 312 nior Year BIO 416 ES 430 GBLW 435 NAUT 416 <sup>+</sup>	Organic Chemistry Laboratory     GIS     Nautical Operations: Safety     Intgrtd Bridge Sys & Voyage Plannin     MES Elective     Semester Credits:     Fisheries Science     Environmental Impact Assessment     Environmental Law & Policy     Bridge Resource Mgmt (Unltd Lic.)     Estuaries & Coastal Processes     MES Elective     Semester Credits:	1       3       2       4       3       19       3
, , , ,	CHEM 312 E MATH 251 St MT 321 In NAUT 314 R NAUT 315 In MT 530 St PS 412 M BIO 320 <sup>+</sup> In ES 451 <sup>+</sup> F GEOL 301 G MT 412 D	nvironmental Chemistry Lab tatistics htro to Cargo Ops & Stability ules of the Road htro to Integrated Bridge Systems Semester Credits: ummer Sea Term III fedical Care Provider Unvertebrate Zoology ield Methods in Environ. Science General Geology beck License Seminar faritime Communications	1 3 2 3 18 5 1 5 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	vision - Se	CHEM 322 ES 303 NAUT 308 NAVG 312 nior Year BIO 416 ES 430 GBLW 435 NAUT 416 <sup>+</sup>	Organic Chemistry Laboratory     GIS     Nautical Operations: Safety     Intgrtd Bridge Sys & Voyage Plannin     MES Elective     Semester Credits:     Fisheries Science     Environmental Impact Assessment     Environmental Law & Policy     Bridge Resource Mgmt (Unltd Lic.)     Estuaries & Coastal Processes     MES Elective	$\frac{1}{3}$ $\frac{2}{4}$ $\frac{4}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$

Total Credits: 167.5

Note: Though not required for your license, students who plan to sail are strongly advised to take MT 435 (Maritime Security) in addition to the courses above. (1) This course is offered in odd years only. (2) This course is offered in even years only.

Courses in **bold type** are typically limited to the semester shown.

+ Students must register for both lecture and laboratory or recitation.

(2)	BIO 315	Marine Biology	3	
	<b>CHEM 311</b>	Environmental Chemistry	3	
	<b>CHEM 312</b>	Environmental Chemistry Lab	1	
	MATH 251	Statistics	3	
L	MT 321	Intro to Cargo Ops & Stability	3	
L	NAUT 314	Rules of the Road	2	
L	NAUT 315	Intro to Integrated Bridge Systems	3	
		Semester Credits:	18	

0 u	mor rear			
(1)	BIO 415	Ichthyology	3	
	CHEM 321	Organic Chemistry	3	
	CHEM 322	Organic Chemistry Laboratory	1	
	ES 303	GIS	3	
L	NAUT 308	Nautical Operations: Safety	2	
L	NAVG 312	Intgrtd Bridge Sys & Voyage Plannin	4	
		MES Elective	3	
		Semester Credits:	19	

		LO	ver Div	ision
	CHEM 121	General Chemistry I	3	
	CHEM 122	General Chemistry I Laboratory	1	
	HIST 101	American Civilization I	3	
	HUMN 201	World Literature & Culture I	3	
L	METE 201 <sup>+</sup>	Meteorology for Mariners	3	
L	MT 250	Ship Construction & Stability	2	
	PHYS 211	General Physics I	3	
	PHYS 213	General Physics I Lab	0.5	
		Semester Credits	: 18.5	

License Credits (L in left column): 62

## B.S. in Marine Environmental Science with Internship, Marine Biology Minor

#### **Fall Semester**

	Lov	ver Div	vision - l	Fresh	man Year
BIO 201+	General Biology I	4			BIC
CS 101	Computer Laboratory	1			ENG
ENGL 101	Freshman English I	3			MATI
ES 101+	Intro to Environmental Science	3			OCE
LEAD 101	Leadership/Maritime Experience	1			OCE
MATH 111	Applied Calc I (or MATH 101)	4			Р
	Semester Credits:	16			

Spring Semester

- ricomman rear				
BIO 202*	General Biology II	4		
ENGL 102	ENGL 102 Freshman English II			
MATH 112	Applied Calc II (or MATH 102)	3		
OCEA 101	General Oceanography	3		
OCEA 102	General Oceanography Lab	1		
PE 100	Swimming and Lifetime Fitness	1		
	Semester Credits:	15		

CHEM 124 General Chemistry II Laboratory

BIO 210 Ecology

CHEM 123 General Chemistry II

HIST 102 American Civilization II

HUMN 202 World Literature & Culture II

#### Lower Division - Sophomore Year

CHEM 121	General Chemistry I	3	
CHEM 122	General Chemistry I Laboratory	1	
HIST 101	American Civilization I	3	
HUMN 201	World Literature & Culture I	3	
METE 201+	Meteorology for Mariners	3	
PHYS 211	General Physics I	3	
PHYS 213	General Physics I Lab	0.5	
	Semester Credits:	16.5	

Semester Credits: 16.5

			Upper <b>D</b>	oivision	- Junic	or Year
(2)	BIO 315	Marine Biology	3		(1)	I
	CHEM 311	Environmental Chemistry	3			CH
	CHEM 312	Environmental Chemistry Lab	1			CH
	MATH 251	Statistics	3			
		Free Elective	3			
		Semester Credit	s: 13			

Sumor rear							
(1)	BIO 415	Ichthyology	3				
	CHEM 321	Organic Chemistry	3				
	CHEM 322	Organic Chemistry Laboratory	1				
	ES 303	GIS	3				
		MES Elective	3				
		Semester Credits:	13				

ES 505	Environmental Science Internship I	3	
ES 515	Environmental Science Internship II	3	

**Upper Division - Senior Year** 

(1) BIO 320 <sup>+</sup>	Invertebrate Zoology	4	(2)	]
ES 451 <sup>+</sup>	Field Methods in Environ. Science	4		
GEOL 301	General Geology	3		GB
	Free Elective	3		00
· · · · · ·	Semester Credits:	14		

	iioi i cui			
(2)	BIO 416	Fisheries Science	3	
	ES 430	<b>Environmental Impact Assessment</b>	3	
	GBLW 435	Environmental Law & Policy	3	
	OCEA 402	Estuaries & Coastal Processes	3	
		MES Elective	3	
		Semester Credits:	15	

Lower Division Credits: 60.5 Upper Division Credits: 61

Semester Credits:

Total Credits: 121.5

3

3

1

3

3

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## B.S. in Marine Environmental Science with Deck License, Meteorology and Oceanography Minor

		Fall Semester	р.		<b>Б</b> 1	Spring Semester	
T	BIO 201*	General Biology I	ver Div	<u>-1sion</u> -	- Fresh	man Year BIO 202 <sup>+</sup> General Biology II	4
		Computer Laboratory	1			ENGL 102 Freshman English II	3
		Freshman English I	3			MATH 112 Applied Calc II (or MATH 102)	3
		Intro to Environmental Science	3		L	NAUT 102 Intro to Vessel Ops & Seamanship	1
		Leadership/Maritime Experience	1		L	NAVG 112 Navigation I: Intro to Navigation	4
		Applied Calc I (or MATH 101)	4			OCEA 101 General Oceanography	3
		STCW Basic Training	2			OCEA 102 General Oceanography Lab	1
	10112		_		L	PS 103 Water Safety & Survival	1
		Semester Credits:	18			Semester Credits:	20
	MT 510	Summer Sea Term I	6				
		Low	er Divi	ision -	Sophor	nore Year	
	CHEM 121	General Chemistry I	3			BIO 210 Ecology	3
	CHEM 122	General Chemistry I Laboratory	1			CHEM 123 General Chemistry II	3
	HIST 101	American Civilization I	3			CHEM 124 General Chemistry II Laboratory	1
	HUMN 201	World Literature & Culture I	3			HIST 102 American Civilization II	3
	METE 201+	Meteorology for Mariners	3			HUMN 202 World Literature & Culture II	3
		Ship Construction & Stability	2		L	MT 322 <sup>+</sup> Marine Cargo Operations	3
		General Physics I	3		L	NAVG 212 Navigation II: Oceans	4
		General Physics I Lab	0.5			8	
		Semester Credits:	18.5		<u>                                      </u>	Semester Credits:	20
	MT 520	Summer Sea Term II	6	0	R L	MT 521 Cadet Comm Vessel Shipping	6
		T				V	
	CHEM 311	Environmental Chemistry	pper D	'IVISION	ı - Juni	or Year CHEM 321 Organic Chemistry	3
		Environmental Chemistry Lab	1			CHEM 322 Organic Chemistry Laboratory	1
	MATH 251		3			ES 303 GIS	3
		Intro to Cargo Ops & Stability	3		L	NAUT 308 Nautical Operations: Safety	2
		Rules of the Road	2		L	NAVG 312 Intgrtd Bridge Sys & Voyage Plannin	4
		Intro to Integrated Bridge Systems	3		(1)	OCEA 415 Marine Biogeochemistry	3
		Marine Environmental Issues	3		(1)	MES Elective	3
	UCEA 425	Semester Credits:	18			Semester Credits:	19
	MT 520	Summer Sea Term III	5				
		Summer Sca Lerm III					
	DC /12		1				
	PS 412	Medical Care Provider	1				
	PS 412	Medical Care Provider	1	ivisior	n - Seni	or Year	
		Medical Care Provider	1	vivisior	n - Seni	or Year ES 430 Environmental Impact Assessment	3
	ES 451 <sup>+</sup>	Medical Care Provider U	1 pper D	ivisior	n - Seni		33
	ES 451 <sup>+</sup> GEOL 301	Medical Care Provider U Field Methods in Environ. Science	1 pper D 4	Divisior	n - Seni (2)	ES 430 Environmental Impact Assessment	
	ES 451* GEOL 301 METE 350*	Medical Care Provider U Field Methods in Environ. Science General Geology	1 pper D 4 3	Division		ES 430Environmental Impact AssessmentGBLW 435Environmental Law & Policy	3
	ES 451* GEOL 301 METE 350* MT 412	Medical Care Provider U Field Methods in Environ. Science General Geology Synoptic Meteorology	1 pper D 4 3 4	Division	(2)	ES 430Environmental Impact AssessmentGBLW 435Environmental Law & PolicyMETE 408Dynamic Meteorology	3 3
	ES 451* GEOL 301 METE 350* MT 412	Medical Care Provider U Field Methods in Environ. Science General Geology Synoptic Meteorology Deck License Seminar	1 <b>pper D</b> 4 3 4 4		(2)	ES 430   Environmental Impact Assessment     GBLW 435   Environmental Law & Policy     METE 408   Dynamic Meteorology     NAUT 416 <sup>+</sup> Bridge Resource Mgmt (Unltd Lic.)	3 3 3
	ES 451* GEOL 301 METE 350* MT 412	Medical Care Provider U Field Methods in Environ. Science General Geology Synoptic Meteorology Deck License Seminar	1 <b>pper D</b> 4 3 4 4		(2)	ES 430   Environmental Impact Assessment     GBLW 435   Environmental Law & Policy     METE 408   Dynamic Meteorology     NAUT 416 <sup>+</sup> Bridge Resource Mgmt (Unltd Lic.)     OCEA 402   Estuaries & Coastal Processes	3 3 3 3
	ES 451* GEOL 301 METE 350* MT 412	Medical Care Provider U Field Methods in Environ. Science General Geology Synoptic Meteorology Deck License Seminar Maritime Communications	1 <b>pper D</b> 4 3 4 3		(2)	ES 430   Environmental Impact Assessment     GBLW 435   Environmental Law & Policy     METE 408   Dynamic Meteorology     NAUT 416 <sup>+</sup> Bridge Resource Mgmt (Unltd Lic.)     OCEA 402   Estuaries & Coastal Processes     MES Elective   Semester Credits:	3 3 3 3 3
	ES 451* GEOL 301 METE 350* MT 412	Medical Care Provider U Field Methods in Environ. Science General Geology Synoptic Meteorology Deck License Seminar Maritime Communications	1 <b>pper D</b> 4 3 4 3		(2)	ES 430 Environmental Impact Assessment GBLW 435 Environmental Law & Policy METE 408 Dynamic Meteorology NAUT 416 <sup>+</sup> Bridge Resource Mgmt (Unltd Lic.) OCEA 402 Estuaries & Coastal Processes MES Elective Semester Credits: USCG License Exam:	3 3 3 3 3 18
	ES 451* GEOL 301 METE 350* MT 412	Medical Care Provider U Field Methods in Environ. Science General Geology Synoptic Meteorology Deck License Seminar Maritime Communications	1 <b>pper D</b> 4 3 4 3		(2)	ES 430 Environmental Impact Assessment GBLW 435 Environmental Law & Policy METE 408 Dynamic Meteorology NAUT 416 <sup>+</sup> Bridge Resource Mgmt (Unltd Lic.) OCEA 402 Estuaries & Coastal Processes MES Elective Semester Credits: USCG License Exam: Lower Division Credits:	3 3 3 3 18 88.5
	ES 451* GEOL 301 METE 350* MT 412	Medical Care Provider U Field Methods in Environ. Science General Geology Synoptic Meteorology Deck License Seminar Maritime Communications	1 <b>pper D</b> 4 3 4 3		(2)	ES 430 Environmental Impact Assessment GBLW 435 Environmental Law & Policy METE 408 Dynamic Meteorology NAUT 416 <sup>+</sup> Bridge Resource Mgmt (Unltd Lic.) OCEA 402 Estuaries & Coastal Processes MES Elective Semester Credits: USCG License Exam:	3 3 3 3 3 18

Note: Though not required for your license, students who plan to sail are strongly advised to take MT 435 (Maritime Security) in addition to the courses above. (1) This course is offered in odd years only. (2) This course is offered in even years only.

Courses in **bold type** are typically limited to the semester shown.

<sup>+</sup> Students must register for both lecture and laboratory or recitation.

## B.S. in Marine Environmental Science with Internship, Meteorology and Oceanography Minor

#### **Fall Semester**

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BIO 201+	General Biology I	4	
CS 101	Computer Laboratory	1	
ENGL 101	Freshman English I	3	
ES 101 <sup>+</sup>	Intro to Environmental Science	3	
LEAD 101	Leadership/Maritime Experience	1	
MATH 111	Applied Calc I (or MATH 101)	4	
	Semester Credits:	16	

BIO 202+	General Biology II	4	
ENGL 102	Freshman English II	3	
MATH 112	Applied Calc II (or MATH 102)	3	
OCEA 101	General Oceanography	3	
OCEA 102	General Oceanography Lab	1	
PE 100	Swimming and Lifetime Fitness	1	
	Semester Credits:	15	

CHEM 124 General Chemistry II Laboratory

BIO 210 Ecology

CHEM 123 General Chemistry II

HIST 102 American Civilization II

HUMN 202 World Literature & Culture II

**Spring Semester** 

Semester Credits: 15

Semester Credits:

3

3

1

3

3

13

	L	lower Div	ision
CHEM 121	General Chemistry I	3	
CHEM 122	General Chemistry I Laboratory	1	
HIST 101	American Civilization I	3	
HUMN 201	World Literature & Culture I	3	
METE 201+	Meteorology for Mariners	3	
PHYS 211	General Physics I	3	
PHYS 213	General Physics I Lab	0.5	
	Semester Credi	its: 16.5	

10.5

	Upper Division - Junior Year								
	CHEM 311	Environmental Chemistry	3			CHEM 321	Organic Chemistry	3	
	CHEM 312	Environmental Chemistry Lab	1			<b>CHEM 322</b>	Organic Chemistry Laboratory	1	
	MATH 251	Statistics	3			ES 303	GIS	3	
(2)	OCEA 425	Marine Environmental Issues	3		(1)	OCEA 415	Marine Biogeochemistry	3	
		Free Elective	3				MES Elective	3	
Semester Credits: 13 Semester Credits: 13						13			

ES 505	Environmental Science Internship I	3	
ES 515	Environmental Science Internship II	3	

**Upper Division - Senior Year** 

ES 451+	Field Methods in Environ. Science	4	
GEOL 301	General Geology	3	
METE 350 <sup>+</sup>	Synoptic Meteorology	4	
	Free Elective	3	
	Semester Credits:	14	
	GEOL 301		GEOL 301 General Geology 3   METE 350* Synoptic Meteorology 4   Free Elective 3

	ES 430	<b>Environmental Impact Assessment</b>	3	
	GBLW 435	Environmental Law & Policy	3	
(2)	<b>METE 408</b>	Dynamic Meteorology	3	
	OCEA 402	Estuaries & Coastal Processes	3	
		MES Elective	3	
		Semester Credits:	15	

Lower Division Credits: 60.5 Upper Division Credits: 61

Total Credits: 121.5

Lower Division - Sophomore Year

## **B.S. in Marine Operations with Deck License**

#### **Fall Semester**

		Lov	ver Div	vision - I	Fres	hman Year
	ENGL 101	Freshman English I	3			C
	GBUS 100	Intro to Business & Economics	3			ENG
	LEAD 101	Leadership/Maritime Experience	1			HIS
	MATH 111	Applied Calculus I	4			MAT
	MTO 120 <sup>+</sup>	Primer of Towing	3		L	М
L	PS 103	Water Safety & Survival	1		L	NAU
L	PS 112+	STCW Basic Training	2		L	NAV
		Semester Credits:	17			

### **Spring Semester**

-	103	iiiiaii 1 cai			
		CS 101	Computer Laboratory	1	
		ENGL 102	Freshman English II	3	
		HIST 101	American Civilization I	3	
		MATH 251	Statistics	3	
	L	MT 250	Ship Construction & Stability	2	
	L	NAUT 102	Intro to Vessel Ops & Seamanship	1	
	L	NAVG 112	Navigation I: Intro to Navigation	4	
			Semester Credits:	17	

L	MT 510	Summer Sea Term I

#### Lower Division - Sophomore Year

6

6

	GBEC 121	Macroeconomics	3	
	HUMN 201	World Literature & Culture I	3	
L	METE 201+	Meteorology for Mariners	3	
L	MT 322+	Marine Cargo Operations	3	
	PHYS 211	General Physics I	3	
	PHYS 213	General Physics I Lab	0.5	
		Semester Credits:	15.5	

	ENGR 540 <sup>+</sup>	Intro to Ship Systems	3	
	GBEC 122	Microeconomics	3	
	HIST 102	American Civilization II	3	
	HUMN 202	World Literature & Culture II	3	
L	NAUT 314	Rules of the Road	2	
L	NAVG 212	Navigation II: Oceans	4	
		Semester Credits:	18	

MT 521 Cadet Comm Vessel Shipping L

<b>Upper Division - Junior Year</b>	Upper	Division	- Junior	Year
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		e	pper D	
L	ENGL 452	Technical Writing	3	
	ENGR 542	Ship Systems II	2	
	GBTT 251	Transportation Systems	3	
L	MT 212	Ship Management	3	
	MT 321	Intro to Cargo Ops & Stability	3	
	NAUT 308	Nautical Operations: Safety	2	
	NAUT 315	Intro to Integrated Bridge Systems	3	
		Semester Credits:	19	

	CHEM 100	Introductory Chemistry	3	
		Economic Geography	3	
	GBTT 252	Business of Shipping	3	
L	NAVG 312	Intgrtd Bridge Sys & Voyage Plannin	4	
		Humanities Elective	3	
		Composton Cuadita	16	

Semester Credits: 16

L	MT 530	Summer Sea Term III	5	
L	PS 412	Medical Care Provider	1	

<b>Upper Division</b>	1 -	Senior	Year
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GBTT 457	Port and Terminal Operations	3	
MT 412	Deck License Seminar	4	
MT 426 <sup>+</sup>	Maritime Communications	3	
MTO 410	Business of Towing	3	
	Humanities Elective	3	
	Semester Credits:	16	
	MT 412 MT 426+	GBTT 457   Port and Terminal Operations     MT 412   Deck License Seminar     MT 426*   Maritime Communications     MTO 410   Business of Towing     Humanities Elective   Humanities Elective	MT 412   Deck License Seminar   4     MT 426 <sup>+</sup> Maritime Communications   3     MTO 410   Business of Towing   3     Humanities Elective   3

_	SC.	inor rear			
		GBLW 435	Environmental Law & Policy	3	
Γ		MT 408	International Safety Mgt	3	
Γ		MTO 411	Towing Operations	3	
Γ	L	MTOD 414+	Bridge Resource and Team Mgmt	3	
			Humanities Elective	3	
Γ			LAS Elective	3	
		•	Constant Constitut	10	

Semester Credits: 18

USCG License Exam:

Lower Division Credits: Upper Division Credits: License Credits (L in left column):

79.5 75 62 Total Credits: 154.5

Note: Though not required for your license, students who plan to sail are strongly advised to take MT 435 (Maritime Security) in addition to the courses above. Courses in **bold type** are typically limited to the semester shown. + Students must register for both lecture and laboratory or recitation.

## **B.S. in Marine Operations with Engine License**

#### **Fall Semester** Spring Semester Lower Division - Freshman Year CS 101 Computer Laboratory 1 **CHEM 100 Introductory Chemistry** 3 ENGL 101 Freshman English I 3 ENGL 103 Freshman English II for Engineers 3 ENGR 110<sup>+</sup> Intro to Engineering Practice 2 ENGR 100 Engineering Graphics 1 GBUS 100 Intro to Business & Economics 3 ENGR 540 Intro to Ship Systems 3 L LEAD 101 Leadership/Maritime Experience MATH 112 Applied Calculus II 3 1 MATH 111 Applied Calculus I 4 MT 250 Ship Construction & Stability 2 L PS 112<sup>+</sup> STCW Basic Training 2 PS 103 Water Safety & Survival L 1 Semester Credits: 16 Semester Credits: 16 ENGR 510 Summer Sea Term I 6 L Lower Division - Sophomore Year CHEM 212 Materials Science I ENGR 504<sup>+</sup> Manufacturing Process II 3 1 L L ENGR 503<sup>+</sup> Manufacturing Process I 1 L **ENGR 541** Ship Systems I 2 L ENGR 542 Ship Systems II 2 HUMN 202 World Literature & Culture II 3 3 3 GBEC 121 Macroeconomics MT 322<sup>+</sup> Marine Cargo Operations L HIST 101 American Civilization I 3 MTO 310 Shipyard Management 3 HUMN 201 World Literature & Culture I 3 PHYS 214 General Physics II 4 PHYS 211 General Physics I 3 PHYS 216 General Physics Lab 0.5 PHYS 213 General Physics I Lab 0.5 Semester Credits: 16.5 18.5 Semester Credits: ENGR 520 Summer Sea Term II ENGR 521 Cadet Comm Vessel Shipping 6 OR L 6 L **Upper Division - Junior Year** ENGR 243 Transport Processes ENGR 380<sup>+</sup> Intro to Electric Machinery 3 3 ENGR 290 Circuit Analysis 3 ENGR 544 Ship Systems IV 4 L ENGR 543<sup>+</sup> Ship Systems III 3 GBTT 251 Transportation Systems 3 L HIST 102 American Civilization II 3 MATH 251 Statistics 3 MTOE 201<sup>+</sup> Engine Room Resource Mgmt 3 L **NAUT 308** Nautical Operations: Safety 2 Semester Credits: 15 15 Semester Credits: ENGR 516 Engine License Seminar 0 L ENGR 530 Summer Sea Term III 5 L PS 412 Medical Care Provider L 1 **Upper Division - Senior Year** GBTT 252 Business of Shipping ENGR 446 Marine Engine Theory & Appl. 3 3 GBTT 457 Port and Terminal Operations 3 GBLW 435 3 Environmental Law & Policy GBUS 300 International Business 3 3 Humanities Elective Humanities Elective 3 LAS Elective 3 3 3 LAS Elective Professional Option 15 15 Semester Credits: Semester Credits: Professional Option Courses: USCG License Exam: MT 212 Ship Management MT 435 Maritime Security Lower Division Credits: 79 **MTO 300** Regulatory Framework MTO 410 The Business of Towing Upper Division Credits: 66

Courses in **bold type** are typically limited to the semester shown.

+ Students must register for both lecture and laboratory or recitation.

License Credits (L in left column):

Total Credits:

44

145

## **B.S. in Marine Transportation with Deck License**

#### **Fall Semester**

		Low	ver Div	isio
	CS 101	Computer Laboratory	1	
	ENGL 101	Freshman English I	3	
	GBUS 100	Intro to Business & Economics	3	
	LEAD 101	Leadership/Maritime Experience	1	
	MATH 111	Applied Calculus I	4	
L	PS 103	Water Safety & Survival	1	
L	PS 112+	STCW Basic Training	2	
		Semester Credits:	15	

#### on - Freshman Year ENGL 102 Freshman English II 3 HIST 101 American Civilization I 3 MATH 251 Statistics 3 2 MT 250 Ship Construction & Stability L NAUT 102 Intro to Vessel Ops & Seamanship L 1 L NAVG 112 Navigation I: Intro to Navigation 4 Semester Credits: 16

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#### Lower Division - Sophomore Year

	GBEC 121	Macroeconomics	3	
	HUMN 201	World Literature & Culture I	3	
L	METE 201+	Meteorology for Mariners	3	
L	MT 322+	Marine Cargo Operations	3	
	MT 408	International Safety Mgt	3	
	PHYS 211	General Physics I	3	
	PHYS 213	General Physics I Lab	0.5	
		Semester Credits:	18.5	

	GBEC 122	Microeconomics	3	
	GBTT 251	Transportation Systems	3	
	HIST 102	American Civilization II	3	
	HUMN 202	World Literature & Culture II	3	
L	NAUT 314	Rules of the Road	2	
L	NAVG 212	Navigation II: Oceans	4	
Semester Credits:			18	

#### MT 520 Summer Sea Term II L

OR MT 521 Cadet Comm Vessel Shipping L

### **Upper Division - Junior Year**

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		_	I. I	
	ENGL 452	Technical Writing	3	
	GBEC 428	Economic Geography	3	
	GBLW 431	Business Law	3	
	GBMG 341	Organizational Management	3	
L	MT 321	Intro to Cargo Ops & Stability	3	
L	NAUT 315	Intro to Integrated Bridge Systems	3	
		Semester Credits:	18	

	GBEC 424	International Economics & Finance	3	
	GBLW 435	Environmental Law & Policy	3	
	GBTT 252	Business of Shipping	3	
	MT 435	Maritime Security	3	
L	NAUT 308	Nautical Operations: Safety	2	
L	NAVG 312	Intgrtd Bridge Sys & Voyage Plannin	4	
		Semester Credits:	18	

L	MT 530	Summer Sea Term III	5	
L	PS 412	Medical Care Provider	1	

	Upper Di	vision - Se	enior Year	
ational Business	3		GBEC 429	Seminar: Tr

	GBUS 300	International Business	3			GBEC 429	Seminar: Transport. Economics	2	
L	MT 412	Deck License Seminar	4			or GBMG 440	Seminar: Strategy and Policy	3	
L	MT 426+	Maritime Communications	3			MATH 446	Operations Research	3	
		Humanities Elective	3		L	NAUT 416 <sup>+</sup>	Bridge Resource Mgmt (Unltd Lic.)	3	
		LAS Elective	3				Humanities Elective	3	
							Professional Option	3	
		Semester Credits:	16				Semester Credits:	15	

USCG License Exam:

6

Lower Division Credit Upper Division Credit License Credits (L in left column Total Credit

ts:	79.5
ts:	73
1):	62
ts:	152.5

+ Students must register for both lecture and laboratory or recitation.

Professional Option Courses: GBAC 311 Finanical Accounting GBLW 433 Admiralty Law GBTT 451 Marine Insurance GBTT 460 Principles of Global Supply Chain Security GBUS 400 Maritime Cybersecurity MT 404 Environmental Management MTO 410 The Business of Towing MTO 411 Towing Operations NAUT 420 Piloting and Shiphandling NAUT 460 Coastal Operations

NAUT 476 Fast Rescue Boat Operations

Courses in **bold type** are typically limited to the semester shown.

## **B.S. in Maritime Studies with Deck License**

#### **Fall Semester**

		Lov	ver Div	vision - l	Freshr	nan Year
	CS 101	Computer Laboratory	1			ENG
	ENGL 101	Freshman English I	3			ES
	GBUS 100	Intro to Business & Economics	3		L	М
	LEAD 101	Leadership/Maritime Experience	1		L	NAU
	MATH 111	Applied Calculus I	4		L	NAV
L	PS 103	Water Safety & Survival	1			NVS
L	PS 112+	STCW Basic Training	2			
		Semester Credits:	15			

# **Spring Semester**

	ENGL 102	Freshman English II	3	
	ES 101+	Intro to Environmental Science	3	
L	MT 250	Ship Construction & Stability	2	
L	NAUT 102	Intro to Vessel Ops & Seamanship	1	
L	NAVG 112	Navigation I: Intro to Navigation	4	
	NVSC 102	Sea Power & Maritime Affairs	3	
		Constant Constitut	1.(	

Semester Credits: 16

L	MT 510	Summer Sea Term I

Lower Division - Sophomore Year

		2011		 ~~p.	omore rear	
	GBEC 121	Macroeconomics	3		GBEC 122	Microeconomics
	HIST 101	American Civilization I	3		HIST 102	American Civilization II
	HUMN 201	World Literature & Culture I	3		HUMN 202	World Literature & Culture II
	MATH 251	Statistics	3	 L	NAUT 314	Rules of the Road
L		Meteorology for Mariners	3	 L	NAVG 212	Navigation II: Oceans
L	MT 322+	Marine Cargo Operations	3		OCEA 101	General Oceanography
					OCEA 102	General Oceanography Lab
		Semester Credits:	18			Semester Credits:
-		~ ~ ~ ~	-			

6

	L	MT 520	Summer Sea Term II	6		OR	L	MT 521	Cadet Comm Vessel Shipping	6		
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### **Upper Division - Junior Year**

GBLW 435   Environmental Law & Policy   3     GBTT 251   Transportation Systems   3     L   MT 321   Intro to Cargo Ops & Stability   3     L   NAUT 315   Intro to Integrated Bridge Systems   3     Humanities Elective   3   3		ENGL 452	Technical Writing	3	
L     MT 321     Intro to Cargo Ops & Stability     3       L     NAUT 315     Intro to Integrated Bridge Systems     3		GBLW 435	Environmental Law & Policy	3	
L NAUT 315 Intro to Integrated Bridge Systems 3		GBTT 251	Transportation Systems	3	
, , , , , , , , , , , , , , , , , , ,	L	MT 321	Intro to Cargo Ops & Stability	3	
Humanities Elective 3	L	NAUT 315	Intro to Integrated Bridge Systems	3	
			Humanities Elective	3	

Semester Credits: 18

L	MT 530	Summer Sea Term III	5	
L	PS 412	Medical Care Provider	1	

			Upper L	Divisio
(1)	HUMN 465	Humanities Research Methods	3	
	or ENGL 416	Literature of the Sea	3	
L	MT 412	Deck License Seminar	4	
L	MT 426+	Maritime Communications	3	
		Humanities Elective	3	
		Humanities Elective	3	
		Semester Credits	: 16	

· · ·					
	GBTT 252	Business of Shipping	3		
	HIST 416	US Maritime History to Civil War	3		
	or HIST 417	US Maritime History Since 1865	3		
	MT 435	Maritime Security	3		
L	NAUT 308	Nautical Operations: Safety	2		
L	NAVG 312	Intgrtd Bridge Sys & Voyage Plannin	4		
		Humanities Elective	3		
	Semester Credits:				

Semester Credits: 18

	GBEC 428	Economic Geography	3	
	HUMN 490	Studies in Maritime Policy	3	
L	NAUT 416+	Bridge Resource Mgmt (Unltd Lic.)	3	
		Humanities Elective	3	
		Law Elective	3	
		Semester Credits:	15	

USCG License Exam:

Lower Division Credit Upper Division Credit License Credits (L in left column Total Credi

ts:	80
ts:	73
n):	62
ts:	153

(1) This course is offered in odd years only.

Courses in **bold type** are typically limited to the semester shown.

+ Students must register for both lecture and laboratory or recitation.

## Division - Senior Year

## **B.S. in Maritime Studies with Internship**

#### **Fall Semester**

	Lov	ver Div	vision - 1	Fresh	man Year
CS 101	Computer Laboratory	1			ENG
ENGL 101	Freshman English I	3			ES
GBUS 100	Intro to Business & Economics	3			MAT
LEAD 101	Leadership/Maritime Experience	1			METH
MATH 090	Intro to College Mathematics	4			NVS
or MATH 111	Applied Calculus I	4			
PE 100	Swimming and Lifetime Fitness	1			
	Semester Credits:	13			

### Spring Semester

commun i cui		
ENGL 102	Freshman English II	3
ES 101*	Intro to Environmental Science	3
MATH 251	Statistics	3
METE 201+	Meteorology for Mariners	3
NVSC 102	Sea Power & Maritime Affairs	3
•	Someostan Cuadita	15

HIST 102 American Civilization II

HUMN 202 World Literature & Culture II OCEA 101 General Oceanography

OCEA 102 General Oceanography Lab

Free Elective

Semester Credits: 15

Semester Credits:

3

3 3

3

1

3

16

Low	er Div	ision - S	oph	omore	Year	
	3				<b>GBEC 122</b>	Microeconomics

ENGL 452	Technical Writing	3	
GBEC 121	Macroeconomics	3	
HIST 101	American Civilization I	3	
HUMN 201	World Literature & Culture I	3	
	Free Elective	3	
	Someoston Cuadita	15	

Semester Credits: 15

## Upper Division - Junior Year

GBLW 435	Environmental Law & Policy	3	
GBTT 251	Transportations Systems	3	
	Humanities Elective	3	
	Humanities Elective	3	
	LAS Elective	3	
	Semester Credits:	15	

- Ju	Junior Year						
	GBTT 252	Business of Shipping	3				
	HIST 416	US Maritime History to Civil War	2				
	or HIST 417	US Maritime History Since 1865	3				
		Humanities Elective	3				
		LAS Elective	3				
		Free Elective	3				
	•		15				

Semester Credits: 15

**Upper Division - Senior Year** 

	HUMN 490	Studies in Maritime Policy	3	
	HUMN 515	Internship in Maritime Studies II	2	
	or	Free Elective	3	
		Humanities Elective	3	
		LAS Elective	3	
		Law Elective	3	
_		Semester Credits:	15	

Semester Credits: 15

Lower Division Credits: 59 Upper Division Credits: 63

Total Credits:

122

			opper D	1 1 1 51
	GBEC 428	Economic Geography	3	
(1)	HUMN 465	Humanities Research Methods	3	
	or ENGL 416	Literature of the Sea	3	
	HUMN 505	Internship in Maritime Studies I	3	
		Humanities Elective	3	
		LAS Elective	3	
		Law Elective	3	
		Semester Credits	s: 18	

(1) This course is offered in odd years only.

<sup>+</sup> Students must register for both lecture and laboratory or recitation.

## A.A.S. in Maritime Technology with Engine License

#### **Fall Semester Spring Semester** Freshman Year ENGL 101 Freshman English I 3 ENGL 102 Freshman English II 3 GBUS 100 Intro to Business & Economics 3 ENGR 100 Engineering Graphics 1 HIST 101 American Civilization I ENGR 540<sup>+</sup> Introduction to Ship Systems 3 L 3 or HIST 102 American Civilization II MATH 251 Statistics 3 2 LEAD 101 Leadership/Maritime Experience MT 250 Ship Construction & Stability 1 L MATH 090 Intro to College Mathematics 4 CHEM 100 Introductory Chemistry 3 PS 103 Water Safety & Survival 1 or PHYS 211 General Physics I L L PS 112<sup>+</sup> STCW Basic Training 2 Semester Credits: 17 Semester Credits: 15 ENGR 510 Summer Sea Term I L 6 L MTOE 521 Cadet Com Vessel Asst Engr I 2 Sophomore Year ENGR 503<sup>+</sup> Manufacturing Processes I ENGR 504<sup>+</sup> Manufacturing Processes II L 1 L 1 L ENGR 542 Ship Systems II 2 L ENGR 541 Ship Systems I 2 3 3 MTO 410 The Business of Towing L MT 322+ Marine Cargo Operations MTOE 561<sup>+</sup> Marine Engines & Aux Machinery I 3 MTOE 564<sup>+</sup> Engine Room Resource Mgmt 3 L L 3 3 MTOE 563<sup>+</sup> Marine Electrical Machinery L MTOE 562<sup>+</sup> Marine Engines & Aux Machinery II L L NAUT 308 Nautical Operations: Safety 2 L PS 412 Medical First Aid 1 Semester Credits: 14 Semester Credits: 13 MTOE 522 Cadet Com Vessel Asst Engr II MTOE 523 Cadet Com Vessel Asst Engr III L 4 L 2 46

License Credits (L in left column):

Total Credits: 73

## A.A.S. in Maritime Technology with Deck License

#### Fall Semester

			Freshman Year			ar
	ENGL 101	Freshman English I	3			
	LEAD 101	Leadership/Maritime Experience	1			
	MATH 090	Intro to College Mathematics	4			
	MTO 120 <sup>+</sup>	Primer of Towing	3			
L	NAUT 102	Intro to Vessel Ops & Seamanship	1		L	
L	PS 103	Water Safety & Survival	1		L	
L	PS 112+	STCW Basic Training	2			
		Semester Credits:	15			

	ENGL 102	Freshman English II	3	
	GBUS 100	Intro to Business & Economics	3	
	HIST 101	American Civilization I	2	
	or HIST 102	American Civilization II	3	
L	MT 250	Ship Construction & Stability	2	
L	NAVG 112	Navigation I: Intro to Navigation	4	
Semester Credits:			15	

**Spring Semester** 

L	MT 510	Summer Sea Term I	6	
L	*MTOD 524	Cadet Com Vssl Ship Lim Ton I	2	

\* MT 520: Summer Sea Term II may be substituted for MTOD 524. Note that MT 520 has prerequisites MT 510, METE 201, and NAVG 212.

Sophomore Year

				<b>1</b>
L	METE 201+	Meteorology for Mariners	3	
L	MT 321	Intro to Cargo Ops & Stability	3	
	MTO 410	The Business of Towing	3	
L	NAUT 308	Nautical Operations: Safety	2	
L	NAUT 314	Rules of the Road	2	
L	NAUT 315	Intro to Integrated Bridge Systems	3	
			1.	

Semester Credits: 16

L	MT 322+	Marine Cargo Operations	3	
L	MT 426+	Maritime Communications	3	
	MTO 411	Towing Operations	3	
L	MTOD 414 <sup>+</sup>	Bridge Resource and Team Mgmt	3	
L	NAVG 312	Intgrtd Bridge Sys & Voyage Plannin	4	
L	PS 412	Medical First Aid	1	
		LAS Elective or	3 or	
L	NAVG 212	Navigation II: Oceans*	4	
		Semester Credits	20  or	21

Semester Credits: 20 or 21

\* Required for Oceans Endorsement

L	MTOD 525	Cadet Com Vssl Ship Lim Ton II	4	
L	MTOD 526	Cadet Com Vssl Ship Lim Ton III	2	

License Credits (L in left column): 51 License Credits with Oceans Endorsement: 55

Total Credits: 80

Total Credits with Oceans Endorsement: 81