

Core Curriculum Review

Division of Professional Development
Department of Seamanship and Navigation

02 March 2005

Overview

- Sea Nav Core and the Maritime Continuum
- Where are we now?
- How did we get here?
- Where should we go?
 - Maritime Continuum review
 - Integrating summer training
 - Course descriptions
 - Changes implemented, planned
- Staffing
- The way ahead

Seamanship and Navigation Core

<u>Course</u>	<u>Credit Hours</u>
NS100 Fundamentals of Naval Science	3-2-4
NN204 Advanced Navigation	2-2-3
NS310 Strategy and Tactics	1-2-2
NS40X Junior Officer Practicum	<u>2-2-3</u>
	8-8-12

The Maritime Continuum

4/C YEAR

3/C YEAR

2/C YEAR

1/C YEAR

PLEBE
SUMMER

PLEBE
YEAR

3/C
CRUISE

3/C
YEAR

2/C
CRUISE

2/C
YEAR

1/C
CRUISE

1/C
YEAR

P100
Sailing/
DC

NS100
Naval
Science

CSNTS/
FLEET
CRUISE

NN204
Navigation
& Piloting

LANTPAT
Y/P
CRUISE

NS310
Strategy &
Tactics

FLEET
CRUISE

NS40X
JO Practicum

The Basics

Deck seamanship
Charts
Intro to Piloting
Rules of the Road
Maneuvering Board

Advanced Knowledge

Celestial/Electronic Nav
Tides and Currents
Weather
Piloting Mastery
At-Sea Application

Putting it Together

Naval strategy
Fleet communications
Warfare tactics
LANTPAT execution

Ready for the Fleet

Fleet training
Warfare-specific practicum

What's the Problem?

- Great slide ... but the devil is in the details
- Fleet feedback indicates erosion of USNA graduate mastery of “the basics”:
 - Standard commands: Conning/linehandling
 - Shiphandling
 - Navigation
 - “Tactical” skills: R/T, signals, etc.
- Echoed in Curriculum 21 Fleet survey

UNITED STATES NAVAL ACADEMY

CURRICULUM 21 SURVEY RESULTS

Question: What set of skills capable of being taught by USNA are necessary for Junior Officer success in your warfare area? List three most important

- **Leadership** 46%
- **Seamanship and Shiphandling** 25%
- **Communication Skills** 19%
- English Composition 13%
- Management 12%
- Personnel Management 12%
- Time Management 10%
- Navigation 9%
- Computer Literacy 7%

Question: List up to three Academic Strengths of USNA graduates

- **Mathematics** **39%**
- **Engineering** **34%**
- Physical, Hard and Applied Sciences 17%
- Technical Knowledge and Skills 16%
- Computer Literacy 10%
- English Composition 10%
- Nav Science & Professional Development 9%
- History and Naval History 8%
- Seamanship and Shiphandling 8%
- Work Ethic and Discipline 6%

Where are we now?

Spring 2004, Fall 2004 Courses

NS 100

- Rules of the Road
- Deck Equipt Fam
- MoBoards
- Piloting
- Gyro/Magnetic Compass
- R/T Procedures
- Electronic Charts
- Marine Propulsion

NN 204

- Piloting
- Tides/Currents
- MoBoards
- Weather/Storms
- Celestial Theory
- Rules of the Road
- ECDIS/VMS
- Radar Nav

NS 310

- Military strategists
 - Sun Tsu, Jomini, Mahan, Corbett
- Contemporary strategy
 - NSS, NMS
 - FFTS, Sea Power 21
 - NCW
- Fleet Operations
 - ESG, CSG
 - Command and Control
 - SUW, AW, USW, Strike
 - Expeditionary Warfare
 - USMC

“Current” Core: Initial Impressions

- Too much redundancy:
 - Piloting, Rules of the Road, MoBd
- Inadequate emphasis:
 - Use of fixes to pilot, application of MoBd to practical scenarios, voice communications procedures
- Not taught:
 - Signal book content/use, linehandling
- Out of place in SeaNav:
 - Marine propulsion, military strategists

So, how did we get here?

Historical Perspective – SeaNav Core

1984-1985

<u>Course</u>	<u>Hours</u>
NS101: Fundamentals of Naval Science	2-2-3
NN203: Navigation I	2-2-3
NS252: Shiphandling and Tactics	1-2-2
NN302: Navigation II	<u>2-2-3</u>
	7-8-11

Historical Perspective – SeaNav Core

1984-1985

<u>Course</u>	<u>Hours</u>
NS101: Fundamentals of Naval Science	2-2-3
NN203: Navigation I	2-2-3
NS252: Shiphandling and Tactics	1-2-2
NN302: Navigation II	<u>2-2-3</u>
	7-8-11

1994-1995

<u>Course</u>	<u>Hours</u>
NS100: Fundamentals of Naval Science	3-2-4
NN200: Navigation and Piloting	3-2-4
NS310: Strategy and Tactics	1-2-2
NN40X: Junior Officer Practicum	<u>1-2-2</u>
	8-8-12

Historical Perspective – SeaNav AcYr Core

1984-1985

<u>Course</u>	<u>Hours</u>
NS101: Fundamentals of Naval Science	2-2-3
NN203: Navigation I	2-2-3
NS252: Shiphandling and Tactics	1-2-2
NN302: Navigation II	<u>2-2-3</u>
	7-8-11

1994-1995

<u>Course</u>	<u>Hours</u>
NS100: Fundamentals of Naval Science	3-2-4
NN200: Navigation and Piloting	3-2-4
NS310: Strategy and Tactics	1-2-2
NN40X: Junior Officer Practicum	<u>1-2-2</u>
	8-8-12

2004-2005

<u>Course</u>	<u>Hours</u>
NS100: Fundamentals of Naval Science	3-2-4
NN204: Advanced Navigation	2-2-3
NS310: Strategy and Tactics	1-2-2
NS40X: Junior Officer Practicum	<u>2-2-3</u>
	8-8-12

Where should we go?

Maritime Continuum Review

- Zero-based review
 - Start from goals, vice existing curriculum
 - Work independent of external requirements
- Consider integration with summer training
 - Course work should produce midshipmen ready to participate in summer training
 - Summer training should reinforce/validate academic work

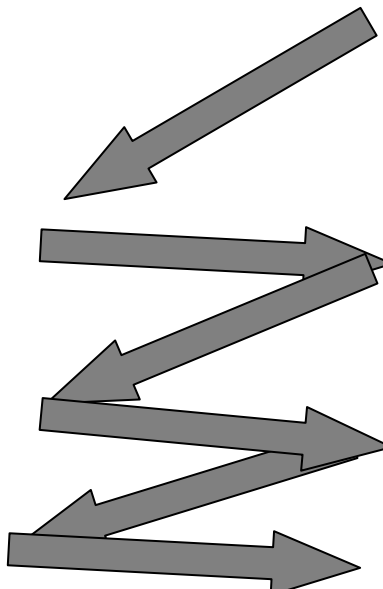
Maritime Continuum Review

- Which mariner skills should be mastered by all USNA graduates?
- What is the best way to teach those skills?
- What is the best sequence of instruction?
 - Focus areas for each class
 - Optimizing the value of summer training

Reduce redundancy, expand
practical application

Integrating Summer Training

<u>Class</u>	<u>Summer</u>	<u>AcYear</u>
4/C	Linehandler, Lookout	Basic Seamanship Skills, Standard Commands, Piloting team member, Understand relative motion, Know Rules of the Road
3/C	JOOD	Master visual/radar piloting, MoBd, Refresh RoR, shiphandling
2/C	YP OOD	Master tactical communications and maneuvering
1/C	YP CO	Warfare community “finishing skills”



NS100: Fundamentals of Naval Science

Seamanship: 16 contact hours

Introduction - 1
Ship Characteristics - 1
Deck Equipment, Marlinspike Seamanship,
and Deck Safety - 2
Standard Commands and **Practical Ex** - 4
YP Familiarization Lab - 2
Shiphandling and **Tide/Current Basics** - 1
R/T Procedures and **R/T Practical Ex** - 3
Anchoring Equipment and Procedures - 1
Seamanship Exam/Review (PW #1) - 1

Moboards: 7 contact hours

Introduction to Moboards I/II -2
Contact Tracking - 1
Moboard Practical Exercise - 2
Moboard Exam/Review (PW #4) -2

Rules of the Road: 9 contact hours

ROR and **ROR Practical Exercise** - 8
ROR Exam/Review (PW #3) - 1

Navigation: 36 contact hours

Nautical Charts - 1
Gyrocompass and Magnetic Compass - 1
Intro to Navigation and Time - 2
Navigational Instruments - 1
Deduced Reckoning and Current Sailing - 1
LOPs and Fixes - 1
Aids to Navigation - 1
Anchoring Plotting - 1
Precise Piloting - 1
Navigation Team/**NAVDORM** -1
Navigation Team U/W Lab I and Lab II - 4
Nav Case Studies - 2
PE #1 Plotting Electronic (GPS) Fixes - 1
PE #2 Plotting Visual Fixes - 2
PE #3 Plotting Visual Fixes and Applying Rules of DR - 2
PE #4 Plotting Radar Fixes and Applying Rules of DR - 1
PE #5A/B Navigator Chart Prep/Timed Simulation - 5
PE #6A/B Nav Team Chart Prep/Timed Simulation - 5
Navigation Exam (PW #2)/Review - 3

Course Review/Simulator Fam: 7 contact hours

SIM Familiarization - 2
Course Review Navigation - 2
Course Review Seamanship -1
Course Review Rules of the Road - 1
Course Review Moboards - 1

NN204: Navigation and Piloting

General Navigation: 21 contact hours

Piloting Review/Precise Piloting - 2

Time Zone Review - 1

Visibility of Lights - 1

Voyage Planning - 1

Tides/Currents - 2

Tides/Currents Practical - 1

Navigator Practical - 2

Navigation Team Exercise - 1

Navigation Team U/W (YP) Labs - 4

Final project preparation/presentation - 4

Test (PW) 1- 2

Simulator Exercises: 5 contact hours

Simulator Familiarization - 1

Visual Piloting - 3

Rules of the Road/Contact

Management - 1

RADNAV Team Exercise - 2

Rules of the Road:

Blackboard Test = no class time relearning material

Weather for the Navigator: 6 contact hours

Weather - 2

Tropical Storms/Evasion- 2

Test (PW) 2 - 2

Celestial Navigation: 12 contact hours

Sunrise/Sunset - 1

Celestial Theory - 3

Intercept Method/Plotting - 2

Latitude by LAN, Polaris - 1

Stella Practical Exercises - 3

Test (PW) 2 - 2

MO BOARDS: 4 contact hours

Moboard Review - 2

Moboard Practical Exercise - 1

Moboards Exam (PW#3) - 1

Electronic Navigation: 7 contact hours

Datums, Coordinates, and Projections - 1

ECDIS - 1

Electronic Navigation/RADAR - 1

GPS - 2

VMS Practical Exercise - 2

NS310: Strategy and Tactics

Navy/Joint Strategy: 15 contact hours

Course Introduction - 1
National Security Strategy - 2
Sea Power 21 - 2
Joint Vision 2010/2020/
Network Centric Warfare - 3
CWC Concept/Command and Control - 5
Case Studies/Current Strategic Issues - 2

Fleet Tactics: 13 Contact Hours

Rules of Engagement - 1
Expeditionary Strike Group/Carrier Strike Group/
Practical Exercise - 4
Surface Warfare/Practical - 3
Strike Warfare – 1
Air Warfare/Practical – 2
USW/Practical – 1
Expeditionary Warfare – 1

Navy Tactics: Practical Applications: 12 contact hours

MoBd Simulator Practical - 2
R/T Fundamentals/MTP Use - 2
YP Piloting - 1
YP Lab: Shiphandling Review - 2
YP Lab: DIVTACS - 4
Guest Lecture - 1

NS40X: Junior Officer Continuum

- Warfare-specific courses of instruction
 - Community culture
 - Warfare fundamentals
- Sea Nav provides oversight:
 - Review syllabuses, plans for semester, approve exams
- Largely taught by “adjunct” instructors (except SWO course)

Staff/Instructor Loading

Sea Nav Billets

1 USN O-5 (1110) - Chairman

3 USN O-4 (1110)

24 USN O-3 (24 1110, 1 1050)

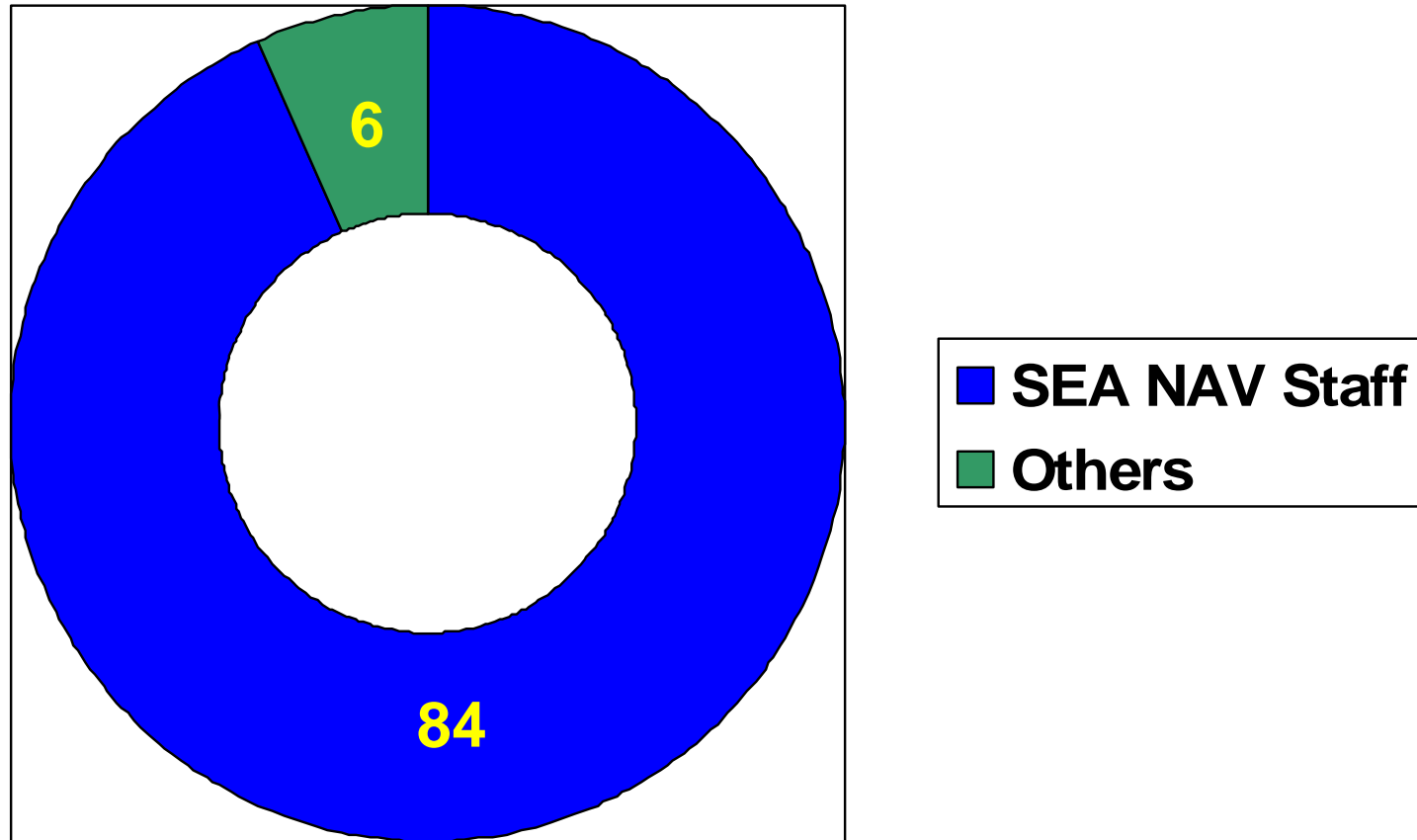
1 USCG O-3

5 International O-4/O-3: RN, JMSDF, FN, IN, BN

Note:

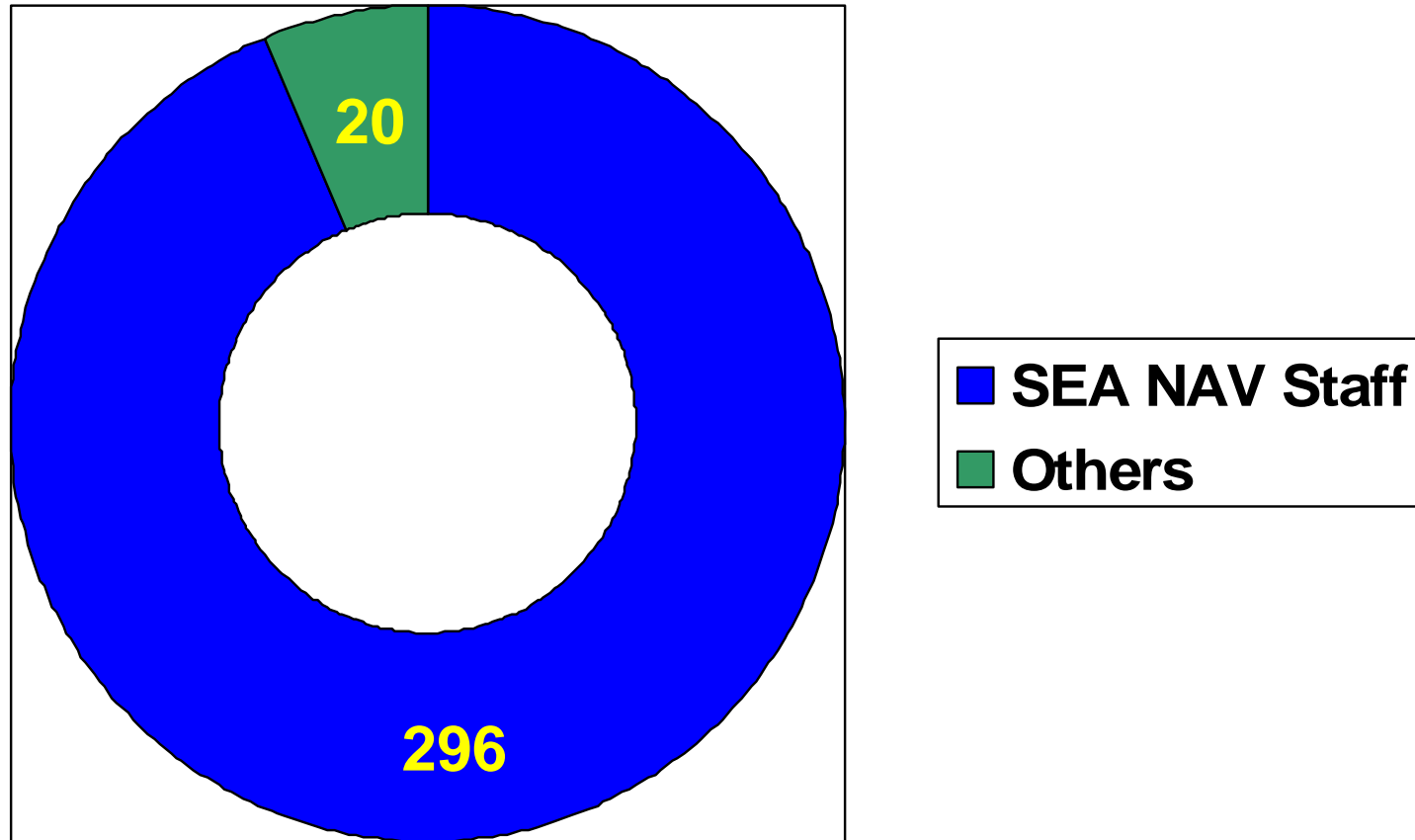
2 USN O-3s permanently transferred to Special Events,
teaching on adjunct basis

Fall 2004: Sections Taught



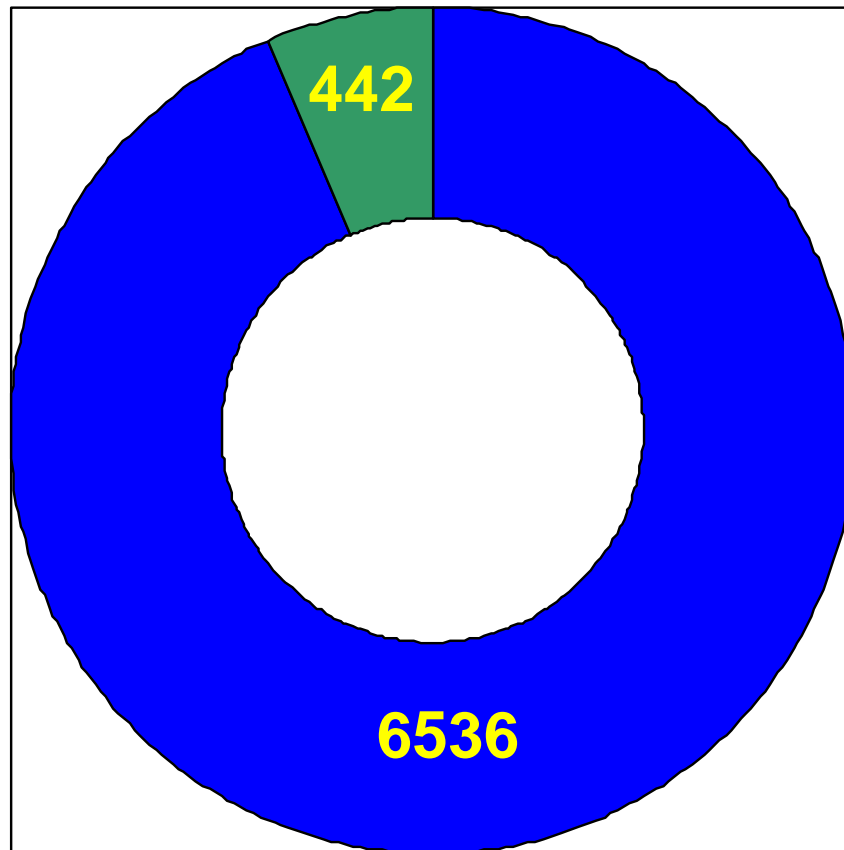
SEA NAV Staff Average: 2.8 Sections/Instructor

Fall 2004: Contact Hours



SEA NAV Staff Average: 9.9 Contact Hours/Week/Instructor

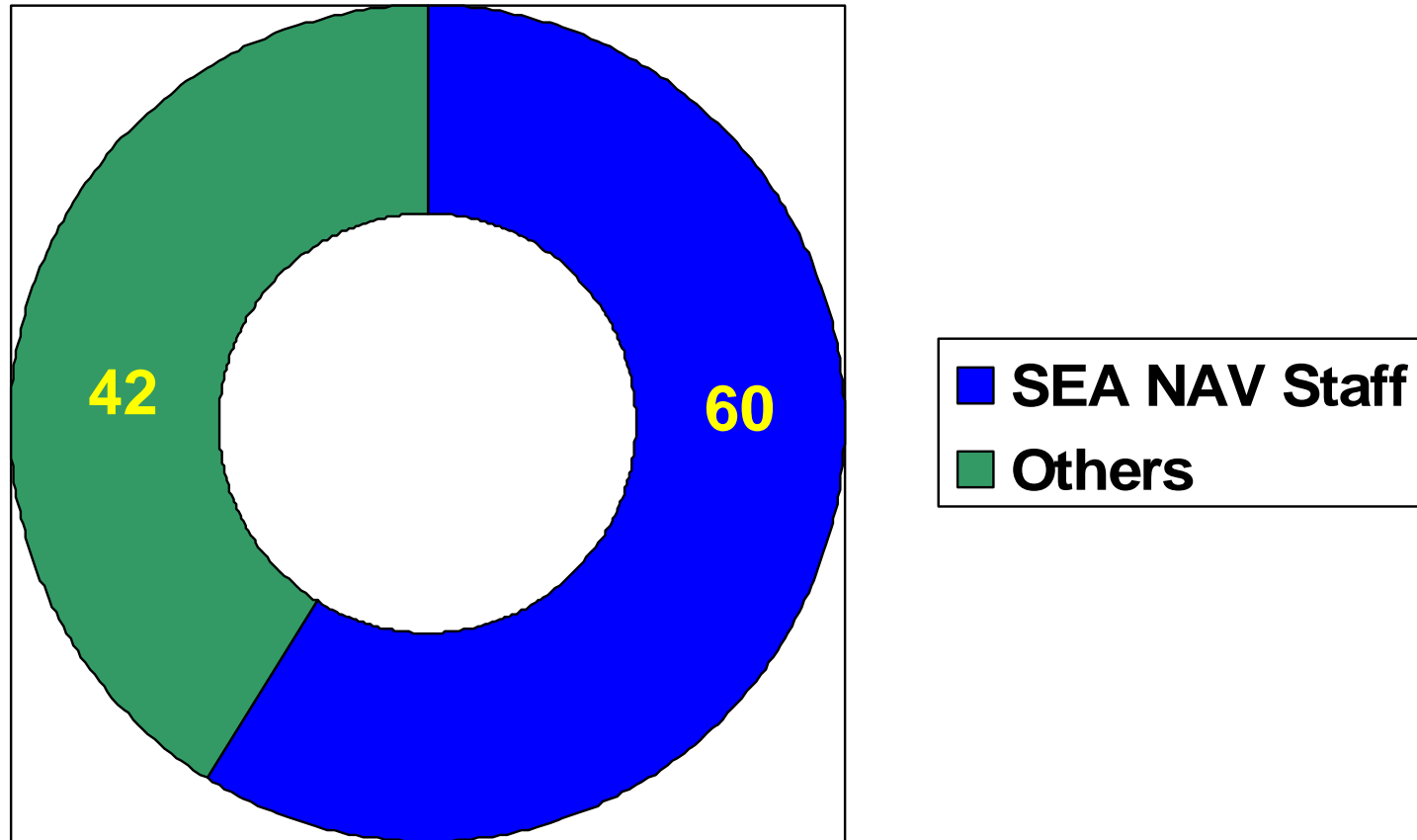
Fall 2004: Mid'n Contact Hours



NN204 Average Section: 22

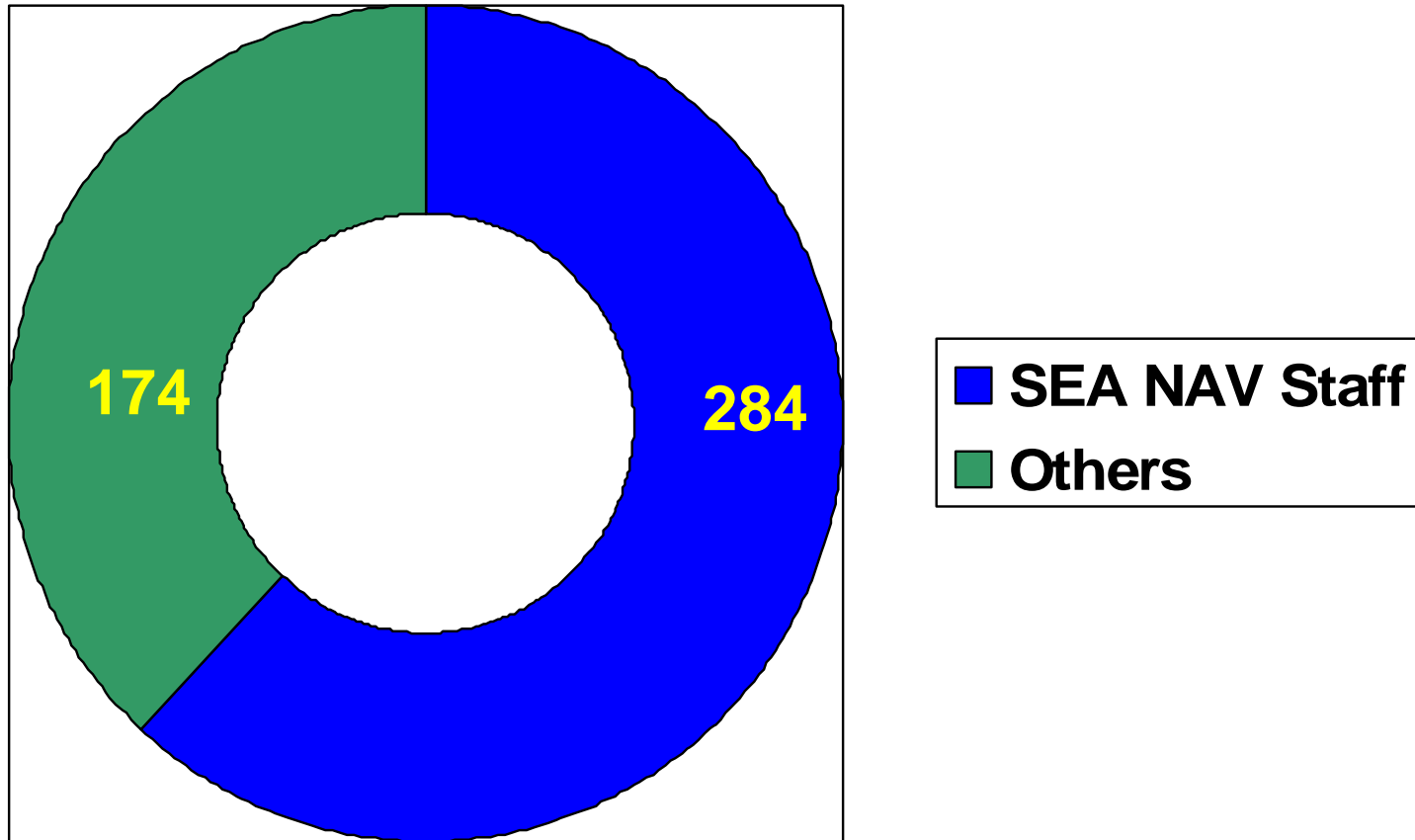
SEA NAV Staff Average: 217.9 Mid'n Contact Hours/Week/Instructor

Spring 2005: Sections Taught



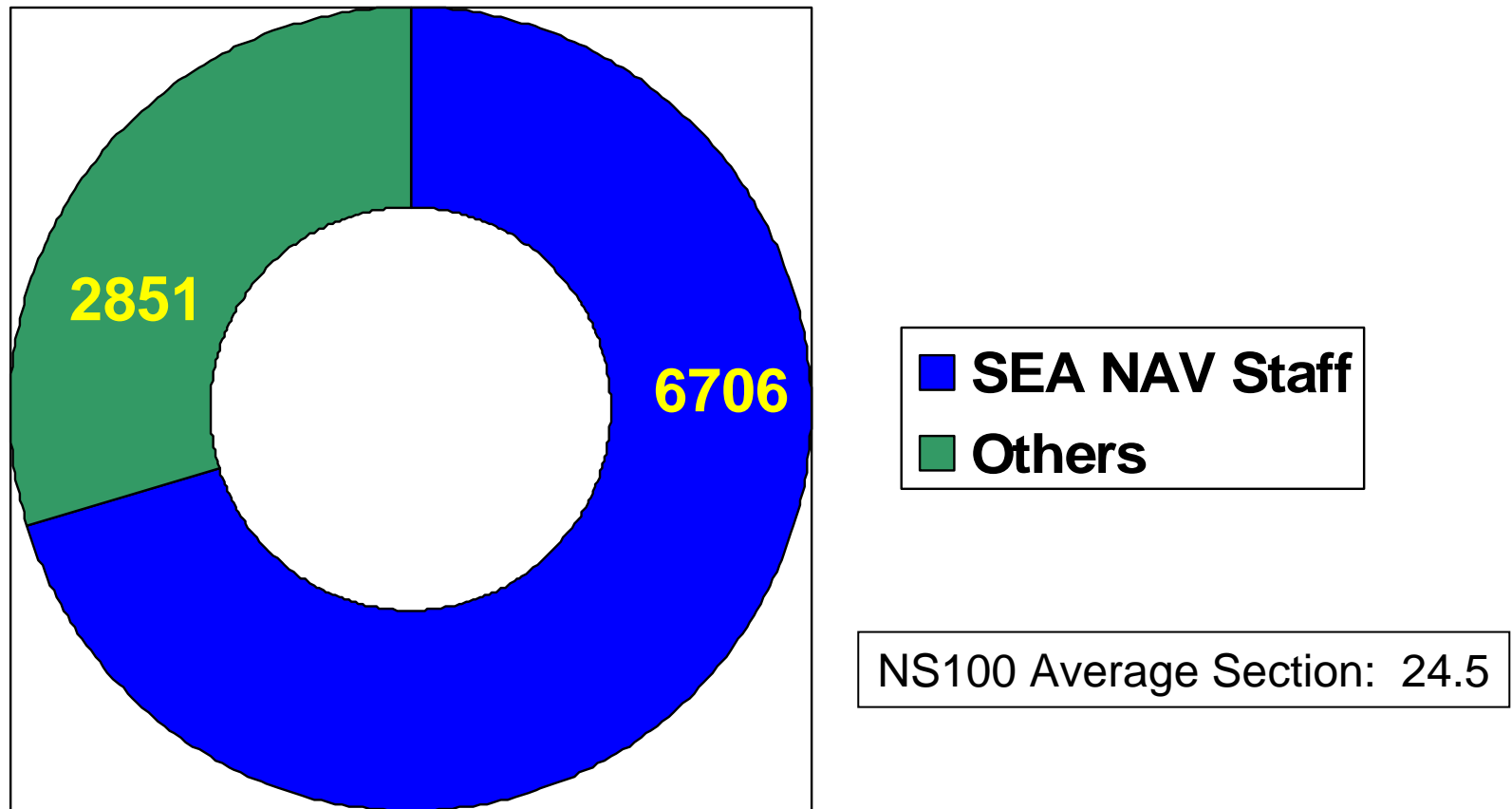
SEA NAV Staff Average: 2.5 Sections/Instructor

Spring 2005: Contact Hours



SEA NAV Staff Average: 9.5 Contact Hours/Week/Instructor

Spring 2005: Mid'n Contact Hours



SEA NAV Staff Average: 279.4 Mid'n Contact Hours/Week/Instructor

The Way Ahead

- Fully implement integrated four-year program of progressive qualification standards
- Refine 100 to 204 to 310 sequence
- Improve instruction of “chartless” navigation
- Continue to improve use of simulators
- Increase emphasis in grading on practical demonstration vice in-class exams