In this course we will examine theoretical books of shipbuilding from the early 15th to the early 19th century. Each three-hour meeting will encompass one oral report on the day’s theme (45 minutes), followed by three or four oral presentations and discussions of case-studies related to the day’s theme (20 minutes), and based on relevant primary material (shipwrecks or historical documents). In addition, there will be general readings assigned to the whole class. In order for this to work, everyone must keep up with the readings, and everyone must participate in the discussion. The final grade is based 50% on oral reports and class participation, and 50% on a term paper.

**General readings**


Schedule

Week 1: Introduction

Week 2: Thinking of ships

Report:

1.1. Floats, rafts, dugouts, and assembled craft. Shell and frame-based vessels.


Case-studies:

1.2. Early descriptions. What characterizes a particular vessel?


1.3. Longitudinal and transversal control. Geometric algorithms.


   Murray, Mungo, A treatise on ship-building and navigation: in three parts, wherein the theory, practice, and application of all the necessary instruments are perspicuously handled, (2nd Ed.) London: Printed for A. Millar, 1765 :128-144.


1.4. Oral traditions and geometric design.

Week 3: Knowledge in the Middle Ages and Renaissance, theory and practice.

Report:


Case studies:

3.2. Villard de Honnecourt (c. 1230-5).

The sketchbook of Villard de Honnecourt / Edited by Theodore Bowie Bloomington, Indiana University; distributed by G. Wittenborn, New York, c.1959.

3.3. Alberti’s *Ten Books*, (c. 1480).


3.4. Palladio’s *Four Books*, (c. 1530).


3.5. Vignola’s *Canon of the Five Orders of Architecture* (1572).

Vignola, *An elementary treatise on architecture comprising the complete study of the five orders, with indications of their shadows and the first principles of construction / work divided into seventy-six plates drawn and arranged by Pierre Esquié* (translated by William Robert Powell). Cleveland: J. H. Jansen, 1925.
Week 4: Early texts on shipbuilding

Report:

4.1. Italy during the Renaissance. The Mediterranean trade and the maritime republics. Ships and shipping. Labor organization: Guilds, fraternities and pious associations.


Case studies:

4.2. Medieval ships – From Yassi Ada 7th century to Culip VI


Nieto Prieto, Javier et al., Excavacions arqueològiques subaquàtiques a Cala Culip, I., Girona: Centre d’Investigacions Arquelògiques de Girona, 1989.

4.3. Michael of Rhodes / Fabrica di Galere


4.4. Timbotta’s manuscript

Week 5: Italy

Report:

5.1. The Venetian Arsenal.


Case studies:

5.2. *Ragioni Antique dell’arte del mare et fabricar vasselli* and Pre Teodoro de Nicolo’s *Instructione sul modo di fabricare galere*


5.3. *Arte de far vasselli*


   *Arte de far vasselli*, manuscript No. 6391 in the Oesterreichische Nationalbibliothek, Vienna (copy in the library of the Nautical Archaeology Program at Texas A&M University).

5.4. *Visione del Dracchio* and Crescencio’s *Nautica Mediterranea*


*Topic for your term paper due next week before class.*
Week 6: Spain

Report:

6.1. Spain: from the unification to the Habsburgs.


Case studies:

6.2. Escalante de Mendoza, *Ytinerario de navegation de los mares y tierras occidentals*, 1575.


6.3. Diego García de Palacio, *Instrucción nautica para el buen uso y regimiento de las naos, su traza y govierno*, 1587.


Palacio, Diego García de, *Instrucción nauthica para el buen uso y regimiento de las naos, su traza y govierno*, Mexico: Pedro de Ocharte, 1587.


Week 7: Portugal

Report:

7.1. Portugal. The 15th century expansion into the Atlantic. The India Route. The Habsburg political organization.


Case studies:

7.2. Father Fernando Oliveira’s *Ars nautica*, c. 1570, and *Livro da fabrica das naus*, 1580.


7.5. Manoel Fernandez’ *Livro de tracas de carpintaria*, 1616.


Abstract and bibliography of your term paper due next week before class.
Week 8: England

Report:
9.1. England in the 16th and 17th centuries.

Case studies:

9.3. John Wells, Phineas Pett, the Scott manuscript (c.1600 copied by Newton), and *A Treatise on Shipbuilding* c. 1620.

   Bushnell, Edmund, *The compleat ship-wright microform : plainly and demonstratively teaching the proportions used by experienced ship-wrights according to their custome of building, both geometrically and arithmetically performed : to which is added, certain propositions in geometry ... : also, a way of rowing of ships by heaving at the capstane*. London: Printed by W. Leybourn for George Hurlock, 1664.

9.5. Deane’s naval doctrine.
Week 9: France

Report:

Case studies:
10.2. Brest and the Album de Colbert

10.3. The Belle case

10.4. Traité de Construction de Galères
Week 10: Holland

Report:
11.1. The Netherlands in the 16th and 17th Centuries. The North and the south. The India route.


Case studies:
11.2. Witsen’s Architectura navalis et regimen nauticum.


11.3. van Yk’s De nederlandsche scheeps-bouw-konst, 1697.

van Yk, Cornelius, De nederlandsche scheeps-bouw-konst open gestelt : vertoonende naar wat regel, of evenredenheyd … mitsgaders masten, zeylen, ankers … Delft : Gedrukt by Andries Voorstad … voor Jan ten Hoorn, 1697.

11.4. The Ships of Abel Tasman.


Week 11: The 18th Century: Lines Drawings and Mathematics

Report:


Case studies:

12.2. *Architectura navalis mercatoria*

12.3. Pierre Bouguer (1746), Duhamel du Monceau (1752) and L Euler
   Murray, Mungo, *A treatise on ship-building and navigation: in three parts, wherein the theory, practice, and application of all the necessary instruments are perspicuously handled*, (2nd Ed.) London: Printed for A. Millar, 1765 :128-144.

12.4. Bouguer, 1746.

12.5. The Shipbuilder’s Repository.

12.6. Album del Marques de la Victoria, 1719 to 1756.
Week 12: The 19th Century: A Scientific Approach

Report:
13.1. The first American frigates. The United States merchant fleet: from the Baltimore Clippers to the clipper ships.

Case studies:
13.2. Baltimore clippers.

13.3. Clipper ships.

13.4. Richard McKay

13.5. Fast Craft

*Term paper due next Friday at 1:00 pm!*
Week 13: Iron

Report:

14.1. Transition from wood to iron.

Case studies:

14.2. Isambard Brunel.

14.3. Iron frames and beams.

14.4. Iron ships.

14.5. Submarines

(Week 14 – Thanks Giving)
Week 15: Steam

Report:

15.1. The development of steam.


Case studies:

15.2. First steamers


15.3. Steamships in the Northeast. Western steamboats.


15.4. Warships.


15.5. American Civil War craft

Oral Reports

Oral reports must **fit exactly** within the time frame established. Images, such as slides or computer graphics' presentations are welcome. I expect students to present a short summary in the beginning, followed by a clear and structured report, **a critic analysis of the sources in which the report was based**, and a conclusion.

Every oral report must be completed with a short handout. Handouts must be useful to your colleagues. Typically these should contain an abstract of your presentation, critical comments (when found pertinent), and a complete list of the bibliography consulted. Timelines are welcome. Although I consider the graphic aspect very important, I will grade specially the contents. I don't care too much for handouts with lots of color pictures and no relevant information.

Term Paper

Term papers must follow the style and format of the *International Journal of Nautical Archaeology and Underwater Exploration*, the *American Neptune*, the *Society for Historical Archaeology Publications Style Guide*, or the *Mariner's Mirror*.

I strongly advise all my students to read Dr. Kevin Crisman's *Guidelines for Writing Your Term Paper*.

The Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office of Support Services for Students with Disabilities in Room 126 of the Student Services Building. The telephone number is 845-1637.

Aggie Honor Code

*“An Aggie does not lie, cheat, or steal or tolerate those who do”*

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M University community from the requirements or the processes of the Honor System. For additional information please visit: [www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/)

On all course work, assignments, and examinations at Texas A&M University, the following Honor Pledge shall be preprinted and signed by the student:

*“On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.”*