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MARINE TRANSPORTATION CURRICULA

1975-1976

by

Gerard J. Mangone

and

Scott C. Truver

DEL-SG-16-76



University of Delaware/A Sea Grant College

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Newark, Delaware
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INTRODUCTION

The Center for the Study of Marine Policy, in addition to its research projects and conferences on issues affecting the use of the oceans, seabed, and coastal zone, has been analyzing education and training in marine affairs. In 1974 the Center published, as part of the University of Delaware Sea Grant program, Marine Affairs and Higher Education and, in 1975, Contemporary Research in Marine Affairs. One facet of "marine affairs," which has been defined as the application of history, law, political science, economics, and other social science disciplines to the oceans, seabed, and coastal zone, is the study of marine transportation. While a number of institutions of higher learning in the United States and Canada have turned their attention in recent years to marine transportation as a subject in their curricula, no up-to-date and systematic study of the courses offered by such institutions has been available. In an attempt to fill that gap, this report examines where courses in marine transportation were offered in 1975-76, what disciplines they encompassed, and how particular courses were organized with their readings.

Marine transportation has long been a fundamental element of world trade. The seaborne carriage of cargo in 1976 accounted for the vast majority of commodity movements in terms of both tonnage and cargo value. In the last twenty years, shipborne cargo tonnage has more than doubled, and a similar growth rate is expected to continue well into the 1980's. Marine transportation has been so important to commerce that every nation hoping to improve or to maintain its position in world trade necessarily

turns to its merchant marine as an indispensable tool to achieve its goals. National development has thus been significantly influenced by the efficiency and cost of an integrated marine transportation system.

Marine transportation involves much more than ships. All forms of the movement of goods must be considered as interdependent elements of the overall transportation system. Ports and terminals have increasingly assumed new functions as the types of ships have changed in design, function, and size. Moreover, increased importance has been given to the interrelationships among the ships, ports, and the hinterland they serve in the efficient movement of cargoes. Commodity transport by diverse land and air modes, linking ocean, coastal, and inland areas, has assumed such importance in the aggregate movement of cargo that such modes must be taken into account when considering the management of marine transportation.

To ascertain the present status of marine transportation curricula in higher education, the Center searched the catalogs of academies, colleges, and universities in the United States and Canada which might offer courses related to marine transportation. Letters requesting course information were sent to sixty-nine United States and sixteen Canadian institutions. Specific information was requested regarding the material covered in the courses, course syllabi, required texts, the time the courses were offered, and the average enrollment as well as the level of students attending the courses.

Of the United States institutions contacted in the survey, sixty (87%) replied to the survey requests. The response from the Canadian institutions was not so large, primarily because of the mail strike which occurred in the fall of 1975. Only four (25%) of the Canadian institutions

replied to this survey. In some instances the Center received no reply to repeated letters of inquiry. Because of this and the somewhat small (eighty-five institutions) sample population, it is therefore possible that the survey fails to identify some course offerings in the area of marine transportation. The Center believes, however, that the results contained here do reflect the general status of marine transportation curricula in 1976, particularly in the United States.

Information sent to the Center from the institutions surveyed ranged from little more than the capsule course descriptions contained in the institution's catalog to complete descriptions accompanied by syllabi, required readings, and outlines. The courses have been listed by institution in Appendix I. Appendix II lists those institutions which responded to the survey. Readers are urged to write directly to the institution if more detail is desired about a specific course or program. In those cases where the generous cooperation of the respondents permitted the Center to include course syllabi and outlines in the study, that valuable information has been presented in Appendix III. The Center has also included in Appendix IV copies of the letters sent requesting information on course offerings.

The Center has organized the data into six topics: Water Transportation and the Geography of Sea Trade; Economics of Marine Transportation; Systems Analysis of Marine Transportation; Management/Decision-Making and Regulation of Marine Transportation Systems; International and Regional Shipping Systems and Ocean Policy Analysis; and Technical Aspects of Merchant Ship Operation. This scheme permitted a relatively easy disaggregation of the information provided by the institutions. Table I, below, presents the data in an aggregate form.

Table I

INSTITUTIONS' OFFERINGS IN TOPICAL AREAS

	Water Transportation Geography	Economics	Systems Analysis	Management/ Decision- Making	International and Regional Systems	Technical Aspects
Arizona State University	X	X				
California Maritime Academy	X	X		X		
Florida State University	X					
Johns Hopkins University					X	
Maine Maritime Academy		X		X	X	X
M.I.T.		X	X	X	X	
North Carolina State University	X					
Rutgers University	X	X			X	
SUNY Maritime College	X	X	X	X		X
Texas A&M University Moody College	X		X	X		
Tufts University					X	
U.S. Coast Guard Academy						X
U.S. Merchant Marine Academy	X	X		X		X
University of British Columbia	X					
University of California, Berkeley	X					
University of Hawaii	X		X			
University of Maryland	X					
University of Miami					X	
University of Michigan		X		X		
University of Oregon					X	
University of Pennsylvania, Wharton School		X		X		
University of Rhode Island	X		X			
University of Washington	X					
University of Wisconsin- Green Bay					X	
University of Wisconsin- Milwaukee	X					

An additional section on course offerings in Admiralty and Maritime Law has been included in the study. Many, if not most, law schools in the United States and Canada have offered such courses for many years. In view of the large number of law schools, it was not possible, in the time available for this survey, to contact a sufficient number of schools to make up a representative sample. Nevertheless, because admiralty law figures prominently in the seaborne carriage of cargoes worldwide, the Center felt it was appropriate to include selected institutions in the survey. The Center discovered that although different types of institutions¹ (i.e., law schools, maritime academies, universities, and colleges of marine studies) responded to the survey, their approaches to teaching admiralty law were very similar.

A number of observations are possible concerning the way in which the teaching of marine transportation has been approached in 1975-76. In some cases, only a specific subject relating to marine transportation has been covered by the course offered by the institution. There is evidence of this in such offerings as Transportation of Hazardous Materials (United States Coast Guard Academy) and Maritime Law (University of Delaware). Furthermore, course offerings at the law schools contacted in the survey were usually limited to admiralty law. The Georgetown University Law Center is atypical insofar as it also offers a course on Transportation Regulation.

¹California Maritime Academy, Dalhousie University School of Law, George Washington University The National Law Center, Georgetown University Law Center, Harvard Law School, Maine Maritime Academy, SUNY Maritime College, Texas A&M University Moody College, U.S. Merchant Marine Academy, University of British Columbia School of Law, University of Delaware College of Marine Studies, and University of Michigan Law School.

Limited course offerings have been the case in other instances as well. Some educational institutions regularly offer only a general survey course intended to cover the major topics related to ocean transportation. For example, Water Transportation (North Carolina State University, University of British Columbia, and University of Maryland), Introduction to Freight Transportation (University of Hawaii), Introduction to Transportation (Florida State University), International Transportation and Distribution Management (University of Oregon), Geography of Ocean Transportation and Marine Uses: Transportation and Commerce (University of Washington), and Maritime Transportation (University of Wisconsin-Milwaukee) have been courses which attempt to cover a wide range of subjects related to marine transportation. In a very few cases, this attempt at comprehensive coverage has resulted in a loss of detail as topics are handled only superficially and in a piecemeal fashion. However, in a number of the survey courses the material appears to provide detailed as well as synoptic coverage of the subject matter.

Certain institutions offer courses in which marine transportation has been examined in the broader context of United States' global objectives. Examples of such courses are Ocean Policy Seminar (Johns Hopkins University-SAIS), Introduction to the Uses of the Seas and Science, Technology, and American Foreign Policy (Tufts University, The Fletcher School of Law and Diplomacy). It appears that such course offerings may be limited to those educational institutions which have designed programs specifically aimed at marine policy analysis. For instance, the Program in International Marine Affairs at The Fletcher School is a multi-disciplinary study of the legal, economic, political, and historical aspects of oceans and ocean resources.

The most comprehensive approach to the study of marine transportation,

both in numbers of courses and the scope and detail of coverage, has been offered at the maritime academies, at the Massachusetts Institute of Technology, and at Rutgers University. Course offerings at the maritime academies have been geared to the career objectives of cadets intending to serve in the Merchant Marine. Courses range from the general (e.g., Ocean Transportation, SUNY Maritime College and Texas A&M Moody College) to the specific and technical (e.g., Petroleum Transportation Management, California Maritime Academy; Marine Insurance, Maine Maritime Academy; Ship Chartering and Brokerage, U.S. Merchant Marine Academy). All the academies offer courses in cargo handling and management.

The program of the Moody College of Marine Sciences and Maritime Resources is illustrative of the approach taken by the academies. Option programs in Marketing and Management have been offered in addition to the regular cadet license program conducted by the Moody College. At the end of 1975, however, no one had ever registered for the Marketing Option; only six students were then enrolled in the Management Option. These options were designed to facilitate the entry into the maritime industry of well-trained people who cannot qualify for the Cadet Program (license). The more traditional route for entry into management has been to serve for a period of time at sea and then to come ashore in a support or management capacity. Moody College encourages its students to enroll in the Cadet Program (license) if they are qualified to do so rather than enter into the Marketing or Management options. Only if a student cannot qualify for the licensing program will he be advised to enter into one of the other options.

Another approach the Center believes merits attention is that of Rutgers University. The Department of Geography at Rutgers has offered two courses specifically related to maritime transportation. Ocean Trade

and Transportation takes into account the central and interrelated role of ocean transportation in the movement of foreign commerce. The scope has been broad since the course is designed to cover in some detail the major subjects of maritime transportation. In recognition of the fact that the flow of goods is not solely dependent upon the vessels in which they are carried, a course entitled Problems in Port Geography has also been offered. A graduate seminar devoted to the study of port geography, this course explores the principal interrelationships among vessels, ports, hinterlands, and the flow of goods. The Graduate School of Business Administration at Rutgers has also offered courses relating to maritime transportation. In these offerings, maritime transportation has been interpreted as a component of intermodal transportation, trade flows, international governmental organization, and national economic and maritime policy. Maritime transportation has been covered comprehensively in the Transportation Economics course and more briefly in the International Marketing course. The Graduate School of Business Administration also participates in the study of maritime transportation through the Journal of Maritime Studies and Management - An International Journal.

The Massachusetts Institute of Technology has had the most extensive, fully integrated, graduate program in ocean transportation and shipping management in the United States for many years. Research and teaching have been centered in the Department of Ocean Engineering, the Center for Transportation Studies of the School of Engineering, and the Sea Grant Program. The field of marine transportation at M.I.T. is addressed in a broad context involving technology, society, and human affairs. The research activities borrow heavily from such fields as naval architecture, economics decision theory, and systems engineering. In the Department of Ocean

Engineering at M.I.T., undergraduate and graduate curricula lead to the bachelor's, master's, and doctoral degrees in marine transportation. The doctoral program has been coordinated with the interests of faculty in other departments through the Center for Transportation Studies. Marine transportation is studied with direct concern for the land mode, to which it is strongly coupled, and the air mode, which offers increasing competition. Intermodal coupling issues relating to marine transportation have been stressed both in teaching and research.

The Center has found that marine transportation can no longer be approached as a subject in which study is limited to vessels and ports. This survey shows that greater emphasis is being placed on the intermodal features of marine transportation and its interrelationships to the total movement of cargoes. Moreover, the technology of commodity movement, national maritime policies and politics, international and national organizations and regulations, maritime law, and resource economics must be included in a rounded teaching program that illuminates the central role marine transportation plays in world trade. The approach taken by The Fletcher School of Law and Diplomacy and in the Johns Hopkins seminar in ocean policy appears particularly well-suited for other institutions conducting similar policy-oriented programs, but which lack any course offerings in marine transportation. The study of marine transportation may be included in existing courses which attempt an overview of the political, economic, and military aspects of national oceans policy. Another alternative is the M.I.T. program which has been integrated and comprehensive in its approach to marine transportation as an intermodal concept. This approach can serve as a model for other educational

institutions intending to initiate a program in marine transportation. Of particular significance is M.I.T.'s Course XIII-B, a five year program leading to the B.S. in Naval Architecture and Marine Engineering, and the M.S. in Shipping and Shipbuilding Management.

The Center discovered that the teaching of marine transportation has seen some growth in the last fifteen to twenty years. Information furnished by those institutions responding to the survey shows that since 1960 at least seven new courses relating to marine transportation have been added to existing programs. This can be seen in Table II, below, depicting the level of instruction and the frequency of course offerings. Furthermore, Dr. Harold M. Mayer (University of Wisconsin-Green Bay) had plans to initiate in the spring of 1977 a new course on Great Lakes Shipping. However, the Center learned that one course, Problems in Port Geography (Rutgers University), had not been offered since 1972, and that Louisiana State University had decided in 1975 to eliminate its course, Geography of Transportation.

Table II also shows that most of the courses were offered at the undergraduate level, at least once each year. The average undergraduate enrollment ranged from ten to fifty students. Many of these courses were survey courses, the object being to provide only an introduction to marine transportation. Graduate level courses had average enrollments of eight to eighteen students. Generally, most of the graduate students were enrolled in transportation-related degree programs. The information which was provided by the institutions taking part in this study precludes all but this general analysis since, in a number of cases, the Center received only catalog descriptions of the courses.

Table II
 LEVEL OF INSTRUCTION AND FREQUENCY OF COURSES
 BY INSTITUTIONS RESPONDING TO THE SURVEY

		Level		Frequency		Odd / Upon Years / Demand
		Undergraduate	Graduate	Each Semester	Each Year	
I. Water Transportation and Geography of Sea Trade	Arizona State University	X		X		X
	Arizona State University	X				
	California Maritime Academy	X			X	X
	California Maritime Academy	X			X	
	California Maritime Academy	X			X	
	Florida State University		X			
	Florida State University	X (12)	X (12)		X [1972]	
	North Carolina State University		X (8-12)		X [1960]	
	Rutgers University	X				
	Rutgers University		X			
	SUNY Maritime College	X			X	
	Texas A&M University	X (20)			X	
	U.S. Merchant Marine Academy	X			X	
	University of British Columbia	X (20-30)			X [ca. 1960]	
	University of Hawaii	X (45)		X		
	University of Maryland	X			X	
	University of Rhode Island	X (15)	X (5-10)		X [1973]	
University of Washington	X (20)	X (20)		X [1966]		
University of Washington		X		X [1976]		
University of Wisconsin-Milwaukee	X			X [ca. 1950]		
II. Economics of Marine Transportation	Arizona State University	X			X	
	California Maritime Academy	X			X	
	SUNY Maritime College	X			X	
	SUNY Maritime College	X			X	
	U.S. Merchant Marine Academy	X			X	
	Univ. of Pa.-Wharton School	X		X		
III. Systems Analysis of Maritime Transportation	SUNY Maritime College	X			X	X
	Texas A&M University	X (10)			X	
	University of Hawaii		X			
	University of Rhode Island	X				X
IV. Management/ Decision-Making and Regulation of Marine Transportation Systems	California Maritime Academy	X			X	X
	California Maritime Academy	X			X	
	California Maritime Academy	X			X	
	California Maritime Academy	X			X	
	California Maritime Academy	X			X	
	SUNY Maritime College	X				
	Texas A&M University	X (10)			X	
V. International and Regional Shipping Systems and Ocean Policy Analysis	Johns Hopkins University		X (18)		X	
	Tufts University		X		X	
	Tufts University		X		X	
	University of Oregon	X (35-50)			X	
VI. Technical Aspects of Merchant Ship Operation	Maine Maritime Academy	X			X	
	SUNY Maritime College	X			X	
	Texas A&M University	X (20)			X	
	U.S. Coast Guard Academy	X			X [1975]	
	U.S. Merchant Marine Academy	X			X	

Numbers in parentheses indicate the average enrollment.

Years in brackets indicate the date the course was first offered.

*Course has not been offered since that year.

N.B. Not all the courses described in the study are included in this table.

Insufficient information provided by some institutions precluded a full accounting of the level of instruction and frequency of course offerings.

This study has sought to reveal some of the strengths and weaknesses in the way in which marine transportation has been conceived and taught at American and Canadian educational institutions. The analysis of those courses offered and the presentation of outlines and syllabi should further the broad concept of marine transportation as a subject for study. The Center has found that except in instances where the institutions have specifically developed marine transportation curricula embodying many aspects of marine transportation, the presentation of this topic appears to be limited to one or two courses per institution.

The Center believes that significant effort should be applied to ensure that marine transportation is taught with a full understanding of the complex interrelationships involved in the international movement of cargoes. Marine transportation as an aspect of marine affairs encompasses a wide range of topics. The study of marine transportation should integrate these diverse legal, political, economic, and military aspects in the analysis of ocean-borne commodity movements. The Center has learned that institutions of higher education have indeed begun to recognize these interdependencies and interrelationships. Because marine transportation is of such great importance to the economic well-being of every nation with respect to its world trade, the training, particularly at the graduate level, of men and women planning to enter the marine transportation industry should not be compromised. Indeed, it should be strengthened and expanded wherever possible to meet future needs.

WATER TRANSPORTATION AND THE GEOGRAPHY OF SEA TRADE

Arizona State University

Geography of Energy (Dr. Reid Wagstaff) This course deals with the socio-economic and environmental impacts of the production, transportation, and consumption of energy. The transportation of crude oil, petroleum products, liquified natural gas, and coal by various ocean-going vessels is emphasized as an important facet of international trade. The advantages and disadvantages of supertankers and superports, and the problem of locating refineries dependent upon foreign crude sources is discussed in detail. It is offered almost every semester.

Transportation Geography (Dr. Reid Wagstaff) A major part of this course is oriented towards maritime transportation facilities. Sea lanes, the flow of international trade, and the types of vessels used for ocean transportation are discussed. Ports are described by function and type, and analyzed from the standpoint of locational and growth factors. It is offered every other year.

California Maritime Academy

Marine Transportation I This course covers the principles and practices of marine transportation. It includes the history of the U. S. Merchant Marine, development of trade routes, commodities, steamship company organization and functions of the various departments, shipping documents, steamship conferences, forwarders and consolidators,

stevedoring and all other agencies directly involved in the movement of marine cargoes. It is offered each year.

Marine Transportation II This course covers the dynamics which affect marine transportation, such as government agencies, economics, government regulation, subsidies, trade associations, labor organizations, and a detailed study of the various Merchant Marine Acts. It is offered each year.

Economic Geography This course provides an analysis of the commercial regions of the world, the patterns of production, distribution and consumption, as well as contemporary industrial and commercial development. It is offered each year.

Florida State University

Advanced Graduate Seminar in Port/Hinterland Relationships (Dr. William A. Rabiega) This is a graduate course offered upon demand.

Introduction to Transportation (Dr. William A. Rabiega) Approximately half of this course is based on waterborne commerce. A portion of this segment is devoted to inland waterways. This course covers port facilities, types of cargo ships, domestic and international regulation, shipping systems analysis, and the role of ports in economic development. It was first offered in the spring of 1972 and has been offered once a year since then. Approximately twenty-five students registered for the course (evenly divided between graduate and undergraduate students). The bibliography and syllabus of this course are in Appendix III A.

North Carolina State University

Water Transportation (Dr. Paul D. Cribbens) This is a graduate level course devoted to the topic of waterborne commerce. The scope of the course includes such topics as the selection of transport technology, government promotion and regulation, the domestic waterway system, international trade and shipping, ship operations, and the planning and design of ports and harbors. It has been offered for the last fifteen years, and will be offered once a year in the fall. The average enrollment is eight to twelve students. The outline of the course is in Appendix III A.

Rutgers University

Ocean Trade and Transportation (Mr. David Glickman) This course is designed to comprehensively cover the major subjects of ocean transportation in some detail. The scope of the course is quite large. Topics cover such areas as the structure of world trade; types and functions of ships, and categories of cargo movements; types of shipping services; structure and composition of the world's merchant fleet, U. S. and foreign merchant marine policies, subsidies and cargo preferences; the siting structure and function of the port; port planning functions, organization and administration; and the interrelationships between the port and the community. This course has been offered three times in the past seven years. Primarily geography, economics, engineering, and business administration undergraduate students are enrolled. The course outline and bibliography are in Appendix III A.

Problems in Port Geography (Dr. Guido Weigend and Mr. David Glickman)

This is a graduate seminar devoted to port geography. It is very comprehensive as it covers such subjects as methodology in port geography, the elements and functions of ocean ports, recent trends in port commerce and factors affecting port competition, recent developments in ship designs and their effects on port planning and development, port geography and the Port of New York, and the functions of port administration. Six weeks of the semester are devoted to lectures, one week consists of a field trip, and the remainder of the semester consists of oral presentations of research topics. It was last offered in 1972 and the enrollment consisted of geography graduate students. The bibliography and outline are presented in Appendix III A.

State University of New York Maritime College

Ocean Transportation This is a study of the marine carrier ashore and afloat with emphasis upon organization structure, policy, administration and operation. The problems of intermodality are also investigated. Students are required to prepare a voyage estimate or some other approved project. This course is required for all juniors in the Marine Transportation program and is offered every year.

Texas A&M University

Moody College of Marine Sciences and Maritime Resources

Ocean Transportation This course is concerned with shipping in the world economy. It is a study of the commercial aspect of the shipping industry. The topics which are covered include the shipping process, labor problems, shipping conferences, rate making and the role of the

government in developing national policies and priorities for the merchant marine. This is an undergraduate course offered in the fall of each year. The average enrollment is twenty students. The course outline is in Appendix III A.

United States Merchant Marine

Marine Transportation The student is provided with the fundamentals of ocean transportation. The course deals with governmental regulation, legislation and subsidies; steamship company organization and administration; and related shoreside activities of the industry. It is offered each year to juniors and seniors. A current course outline follows in Appendix III A.

Domestic Shipping This course analyzes the inland rivers and coast-wise towboat industry with special emphasis in three specific areas. The first area deals with all aspects of towboats and barges in operation. This involves towboat and barge designs, characteristics, and operating principles including the safe operation by all personnel; regulatory and governmental organizations, and private organizations that play a part in the success of this industry. The second area deals with the study of diesel power plants peculiar to the towboat industry. The third subject area involves the study of the economics and management aspects of the industry as compared with deepwater shipping. The course is taught on an interdepartmental basis, utilizing the expertise of appropriate faculty members. In addition, leaders and experts from the industry will conduct seminars concerning the latest designs, techniques, and procedures used in the industry.

University of British ColumbiaThe Center for Transportation Studies

Water Transportation (Professor H. G. Wilson) The primary objective of the course is to provide a knowledge of the structure and operation of the international shipping industry. Many of the problems and issues encountered in the course will serve to demonstrate the applicability of various analytical tools from economics and management science. No text is required, but reading assignments will be made from time to time. Students are required to present an in-class analysis on topics of their choice. In addition, each student will prepare one short paper and a final term paper. The course is offered in the fall semester of each year, and has been offered since the early 1960's. Enrollment varies from twenty to thirty students, including students majoring in transportation studies as a part of the Bachelor of Commerce degree and students with other majors taking the course as an elective. The course is at a senior level; graduate students in transportation studies are advised to audit the course and take special reading courses in marine transportation if that is their particular modal interest. An outline of the course is presented in Appendix III A.

University of California at Berkeley

Harbors, Ports and Offshore Terminals (Continuing Education in Engineering and the College of Engineering) This was a special five-day course held January 27-31, 1975. The scope of the course was broad, dealing with the types and functions of harbors, financial management of ports and offshore terminals, coastal engineering,

offshore construction and the dynamics of oceanographical and meteorological processes which impinge upon the man-made structures in the marine environment. This course was designed specifically to serve the needs of professional engineers, harbor and offshore constructors, designers, and engineering-oriented managers.

University of Hawaii

Transportation and Physical Distribution Systems (Dr. David Bess)

This course deals with all modes of transportation and introduces the concept of physical distribution. Marine transportation topics include a study of the historical development, governmental regulation and promotion, flags of convenience, physical capabilities of domestic and international carriers, and the role of the U. S. Merchant Marine in international and domestic trade. It is offered each semester to undergraduates. The average enrollment is forty-five students.

University of Maryland

Water Transportation (Mr. Mattingly) This course is very comprehensive as it touches upon the major factors affecting waterborne commerce, international as well as domestic. The topics which the course covers include a study of sea power and national power; international trade and ocean transportation; domestic legislation and regulation; financing and subsidies; trade routes and services; the economics of the rate structure, port planning, operation and administration; labor relations; and inland and coastal waterway operations. This is an upper level undergraduate course, offered once a year in the spring. The course syllabus is presented in Appendix III A.

University of Rhode Island

Marine Transportation (Dr. G. A. Motte) This course is concerned with the general scope of marine transport and the carriage of seaborne cargoes. It will take the form of an introductory survey course and attempt to present some of the basics of the principal areas of Marine Transportation. Effort will be made to discuss a new topic each week with emphasis in the direction of existing modern practice at the expense of tradition. Particular emphasis is placed on such topics as trade and cargo patterns; ship types; international and governmental organizations; business, legal and insurance aspects; the position of the U. S. Merchant Marine; and the operation and administration of ports. It has been offered annually since 1973. Average enrollment is five to ten graduate students and fifteen upper-level undergraduates. A course outline is in Appendix III A.

University of Washington

Geography of Ocean Transportation (Dr. Douglas K. Fleming) This course covers a broad range of topics. Subjects include perspectives of the trading system; tramp shipping, voyage costs, freight rates and the chartering broker; routes and flows; liner service; shipping conferences and subsidies; modern innovations in ship and port design; and port geography, sites, facilities and operation. It has been offered since 1966, once each year. Both graduate and undergraduate students are enrolled, the average enrollment being forty students. The course outline follows in Appendix III A.

Marine Uses: Transportation and Commerce (Dr. Douglas K. Fleming)

This is a graduate seminar for the Institution for Marine Studies. It

concerns the role of the oceans in the transportation of men and materials; character and trends in vessel design and terminal facilities; pattern and nature of industry organization; regulatory framework; economics of the shipping industry; management of fleets and vessels; manpower at sea and ashore; national policies affecting the merchant marine and port facilities. The first offering of this seminar was in spring, 1976.

University of Wisconsin - Milwaukee

Maritime Transportation (Dr. Harold M. Mayer) This course is undergoing revision and was offered for the first time in 1975. Dr. Mayer had previously offered a course very similar to this one for the past twenty-five years, first at the University of Chicago and then at Kent State University. The topics which will be covered include principles of spatial distribution and interaction; historical development of maritime transportation; ship types, and the organization of ocean shipping; intermodality, and unitized cargo handling; port development; world ocean routes, and inland waterways--in the U. S. and Europe; and Great Lakes transportation. The course will be similar to the outline which is included in Appendix III A, except that a greater emphasis will be placed on the transportation systems of the Great Lakes. Dr. Mayer is tentatively planning to propose an additional course on Great Lakes Shipping. If this course is authorized, it will be offered for the first time in the spring semester of 1977.

III

ECONOMICS OF MARINE TRANSPORTATION

Arizona State University

Economic Geography (Dr. Reid Wagstaff) This is an introductory course designed to acquaint the freshman-sophomore with the major subfields of Economic Geography. A concise overview of transportation geography is given, which includes the basic characteristics of maritime transport media and facilities. It is offered each semester.

California Maritime Academy

Economics of Sea Transport Maritime transportation systems and economics are approached from a managerial point of view. This course examines the role of marine transportation in the context of the entire transportation system which also includes airlines, railroads, and pipelines. The emphasis of the course is on the maritime transportation concepts necessary to function within the maritime industrial world community. It is offered each year.

Maine Maritime Academy

Maritime Shipping Economics This course covers the principles of international trade and their relationship to the U. S. Merchant Marine. Particular consideration is given to containerization and intermodal systems, chartering, trade routes, and major shipping legislation.

Massachusetts Institute of Technology

Marine Transportation Economics (Dr. J. W. Devanney and Dr. H. S.

Marcus) This course covers such topics as the operation of the principal marine transportation markets, a survey of trade theory, a description of the ship charter markets, analysis of the conference system, analysis of governmental subsidy and protection policies, port pricing and expansion, and the efficient regulation of vessel pollution.

Rutgers University

Transportation Economics (Dr. Robert G. Vambery) This course constitutes an examination of the basic characteristics of each principal mode of transportation, its advantages, its relationships to competing modes and its limitations caused by economic, technological, or regulatory constraints. The role of public finance in such transportation systems is reviewed. Waterborne transport is treated as a component of intermodal transportation. A list of topics and readings are presented in Appendix III B.

State University of New York Maritime College

Labor Economics This course is required of all Transportation Economics seniors. It investigates the growth and practices of unions in the United States, union organization, labor legislation, collective bargaining practices, and employer associations with emphasis on their interactions with the maritime industry. It is offered every year.

Seminar in Transportation Economics This course provides the student with an intensive analysis of the economics of freight and passenger movements via each of the transport modes. Attention is given to the various economic problems of transportation management and regulation.

The course is required for all senior Transportation Economics majors and is offered each year.

United States Merchant Marine Academy

Transportation Economics (Commander Sigmund Kirschen) This course deals with the role of transportation in the U. S. economy, and its interrelationships with other aspects of distribution. The course examines the physical aspects of the various modes of transportation. The role of the government in the allocation of resources and the concepts of the National Transportation Policy are studied. Maritime transportation is studied within this context of intermodality. The course is offered each year to juniors and seniors. A course outline is in Appendix III B.

University of Michigan

Economics of Ship Design (Professor Harry Benford) This course deals with the fundamentals of engineering economics and the practical application of these fundamentals to decision making processes in ship design. The engineer's public responsibility is investigated and stressed. The topics include measures of merit; corporate income taxes, leverage, and depreciation; and cost estimates for building and operating ships. A course outline can be found in Appendix III B.

University of Pennsylvania

Wharton School

Economics of Transportation (Dr. W. Bruce Allen) This is an introductory survey course for majors and non-majors. While not specifically

concerned with marine transportation, the course covers such topics as the application of economic theory to transportation, determinants of demand and the resulting price structure, and institutional structure and regulation. Techniques for analyzing the transport industry and the role of transport in decision making are emphasized. It is offered in the fall and spring semesters.

SYSTEMS ANALYSIS OF MARINE TRANSPORTATION

Massachusetts Institute of Technology

Network Scheduling, Routing and Planning (Dr. E. G. Frankel) This course examines and defines analytical methods which can be applied to maritime transportation systems. The areas to be investigated include critical path methods; graphical evaluation and review techniques; flow graph networks; conditional probabilistic networks; scheduling, planning and routing by networks models; and the practical problems in transportation, production, project planning and management.

Reliability, Availability and Maintainability of Systems (Dr. E. G. Frankel) The quantitative methodology for measuring reliability, availability and maintainability and its applications to a wide range of contemporary systems is the central theme of this course. Dr. Frankel examines such subjects as time independent reliability, Markov and semi-Markov models for systems service reliability, spare part inventory and maintenance scheduling policy development and various replacement and maintenance strategies.

Ship Production Analysis (Dr. E. G. Frankel) The objective of this course is to give the students the opportunity to analyze ship production processes. Students are presented problems relating to the evaluation of shipyard layout, production and material flow; process and facility design production, and process control; mathematical and

econometric analysis of ship production; and management information systems and organizations.

State University of New York Maritime College

Physical Distribution Systems This course investigates the functions of the various transportation agencies including rail, highway, air, pipeline and express services. Topics for study include the operation and intermodal developments of these agencies, collocation, terminology, basis of charges, carrier liability, total physical distribution concept, and governmental regulation. The course is offered upon sufficient demand as it is a senior elective.

Texas A&M University

Moody College of Marine Sciences and Maritime Resources

Introduction to Maritime Systems Engineering This course serves as an introduction to the activities of the ocean and maritime industry. The course is designed to include lectures, seminars, and field trips. Emphasis is placed on outside speakers and industry contacts to help orient the students toward meaningful career opportunities. The course is required for all students in the Maritime Systems Engineering curriculum. It is offered in the fall of each year, and the average enrollment is ten undergraduates. A topical outline can be found in Appendix III C.

University of Hawaii

Coastal and Harbor Engineering II (Dr. Frans Gerritsen) This is a second semester course dealing primarily with port and harbor engineering. Topics include factors that affect the design of a harbor;

harbor oscillations and wave damping; design of coastal and harbor structures; design of entrance channels in view of navigation requirements; mooring arrangements and the development of marine transportation modes (VLCC's and ULCC's); and the design and construction of port facilities. This is a graduate level seminar offered in the second semester of each year.

University of Rhode Island

Ocean Engineering Systems Studies (Dr. Herman Sheets) This course centers around a system engineering study of an advanced engineering problem. Students will operate as a complete engineering team with specific subsystems designs done with individual faculty members. The course follows to a substantial degree the book Hydronautics, edited by Dr. Sheets. Object delivery and retrieval, including cargo transport, is treated as a separate item in the course. This is a two semester course given once every two years.

MANAGEMENT/DECISION-MAKING AND REGULATION
OF MARINE TRANSPORTATION SYSTEMS

California Maritime Academy

Management Analysis and Labor Relations This course provides an outline and discussion of typical merchant ship engineering organization, emphasizing the duties and responsibilities of personnel, the Office of the Port Engineer, the functions of the American Bureau of Shipping, and the U. S. Coast Guard. Labor relations are covered in the course, including legislation, subsidies, contracts, and collective bargaining. It is offered each year.

Transportation Management I This course is a study of the international movement of dry cargo, and it emphasizes the role that the ship's officer plays as a front line manager in the shipping organization's structure. In relation to both break bulk and container operations, the course covers cargo handling equipment, stowage of various commodities, cargo plans and planning of stowage, and trim and stability calculations. It is offered each year.

Transportation Management II This course is a continuation of Transportation Management I and is a study of ocean transportation of bulk liquid cargo. Areas covered include characteristics of petroleum cargo, cargo planning and operations, tanker terminals, pollution control, LNG/LPG, safety, and Coast Guard regulations. It is offered each year.

Petroleum Transportation Management This course is primarily devoted to those students desiring more knowledge about the shoreside operations of the tanker industry with emphasis on management control of various tankship operations. Subjects covered include general characteristics of the tanker industry, trade routes and ports, tanker chartering, cost accounting and control, labor relations and crew composition, safety and training, and tanker losses. About twenty-five per cent of the course is devoted to LNG operations. It is offered each year.

Pollution Control and Laws This course provides the students with an in-depth discussion on the identity of air, water and land pollutants, the nature of their environmental impact, and the technology of reduction and elimination. Emphasis is placed on EPA regulations affecting the maritime industry. An understanding of the applications of control technology is obtained by operation and servicing of ship-board equipment through watch rotations during the academic year as well as during sea training. This includes the control of smoke emissions, monitoring bilge overboard discharges, and the operation of sewage treatment plants and the testing of effluents. It is offered each year.

Maine Maritime Academy

Managerial Economics This course seeks to apply economic analysis to the operation of the shipping firm. Quantitative systems analysis linear programming, decision analysis under uncertainty, and investment alternatives are topics of investigation.

Problems in Transportation Seminar This is an upper-level seminar

in which a current problem affecting the transportation and shipping industry is examined and analyzed.

Ship Business and Industrial Relations The focus of this course is on the ship's business as it pertains to the engineering officer. Its principal focus is on the relationships between the officer and unions. As such, the topics include union organization, rules, policies and benefits; union and non-union hiring; and labor relations of the maritime industry.

Shipyards Management This course covers marine industrial studies, including methods and procedures of shipyard management; planning and estimating; control procedures; industrial relations, accounting, and economics. It takes into account much of the shore-side activities of the shipping industry and shipyard management.

Massachusetts Institute of Technology

Course XIII-B Curriculum program for the B.S. in Naval Architecture and Marine Engineering, and the M.S. in Shipping and Shipbuilding Management. This is a five-year program for students interested in the business and management phases of the marine industry.

Management of Marine Systems (Dr. H. S. Marcus) This course presents an analysis of current technological, market and regulatory trends in various segments of the marine industry. Students will also study government development programs such as liner trades, vessel chartering, shipbuilding, defense systems and coastal facilities. Emphasis is placed on the position of managers rather than public policy makers.

Marine Decision Making Under Uncertainty (Dr. J. W. Devanney III)

An introduction to Bayesian decision theory and adaptive dynamic programming application of these methods to marine decision making under uncertainty is the principal aim of this course. Other topics include capital investments, timing of charters, the layup decision, and maintenance and overhaul policies. The student is introduced to conflict situations and zero and non-zero sum game theory. Certain applications of these techniques to civil and military problems are considered, also.

State University of New York Maritime College

Ocean Traffic and Export-Import Practice Offered upon sufficient student demand, this course provides an understanding of foreign trade and steamship traffic management. The student will examine topics such as documentation, organization for foreign trade, financing, customs procedure, organization and administration of passenger, freight traffic, and subsidiary departments, rate making, chartering, and related documentation.

Advanced Transportation Seminar The purpose of this course, a senior special studies, is to provide the student with the opportunity to prepare an original investigation and research project on problems in transportation management in the marine field.

Seminar in Transportation Management This course is required for all majoring in Marine Transportation. It presents practical problems in transportation management and the analysis of proposed student solutions.

Texas A&M UniversityMoody College of Marine Sciences and Maritime Resources

Port Operations, Administration, and Management This course appears to be structured around the book Management of a Seaport by Martin J. Schwimmer and Paul A. Amundsen. As such, the course follows closely the outline of the book. The topics include an examination of the port authority, seaport administration, revenues, seaport and deepwater terminal operations, intermodalism, and a discussion of the future challenges to port administration. This course is offered in the spring of each year and the average enrollment is ten undergraduates. A course outline is presented in Appendix III D.

United States Merchant Marine Academy

Theory of Marine Operations Present-day maritime industry operational trends and procedures are analyzed from both historic and contemporary viewpoints, with special emphasis on the marine transportation segment of the petroleum industry. Economic, political, social, and international conditions and their effect upon ship design and operation, trade routes, cargoes, and terminal facilities are also discussed along with the applicable regulatory laws and enforcement agencies. The cost of operational alternatives is also analyzed as well as forecasts of future developments.

Seaport Management Acquaints students with seaport organization, management and operations. Examines the interrelationship of seaport agencies with land, water and air modes of transportation. Specialists in aspects of port management lecture frequently.

Ship Chartering and Brokerage The principles and practices of ship

chartering and ship brokerage. The major types of charters are analyzed and the economic relationships of the shipping industry and of the charter market are examined. The roles of ship ownership and ship chartering in the commercial policy of the major trading countries in the world are considered. The course makes extensive use of guest speakers from the shipping industry.

Labor Relations Characteristics of industrial society; labor problems; mechanisms of adjustment; growth, structure, and government of unions; public control of unions; collective bargaining; arbitration, strikes. Applications are made to the maritime labor management field.

Tanker Terminal Operations This course familiarizes the student with the operation of an oil terminal, including design requirements, pollution regulations, operational problems, the importance of "fast turn-around" economics, and new designs in terminals.

University of Michigan

Maritime Management (Professor Harry Benford) The aim of this course is to apply the principles of engineering economics and management techniques to the operation of shipyards and fleets of ships, and to introduce students to the managerial aspects of the marine industry. Particular emphasis will be placed on those aspects that are peculiar to the marine industry and of the most interest to the marine engineer. The topics to be covered include chartering arrangements, freight rates, fleet replacement analysis, general management techniques, and the impact of federal policies and regulations upon the operation and management of maritime systems. A course outline is presented in Appendix III D.

University of PennsylvaniaWharton School

Government and the Transport Industry (Dr. Aaron Gellman) The purpose of this course is to provide an analysis of the role and effect of public policy and government problems of the transport industry. Topics covered include subsidization, taxation, financing, regulation of pricing and services, international relations, and international trade. Although the course does not deal solely with marine transportation, emphasis is placed on the analysis of problems affecting all modes of transportation and the various governmental agencies. The course is offered in the fall each year.

Governmental Role in Transportation (Staff) This course examines and evaluates the government's extensive and diverse involvement, changing role, and influence on all modes of transportation. The course analyzes the significance of changes necessitated by energy conditions, inflation, and environmental issues. Special attention is given to the federal regulatory role in transportation, its relationship to the Department of Transportation, and proposals for regulatory reform. The primary emphasis is on practical and political problems. It is offered in the spring semester of each year.

VI

INTERNATIONAL AND REGIONAL SHIPPING SYSTEMS
AND OCEAN POLICY ANALYSIS

Johns Hopkins University

School of Advanced International Studies

Ocean Policy Seminar (Dr. Robert Friedheim) This course is an introduction to the policies and policy making relating to the 71 per cent of the earth's surface that is salt water. The approach will combine theory--legal, political, economic and empirical--with an examination of recent political events concerning the oceans. The thesis of the course is that the oceans are undergoing an enclosure movement and that the politics that are visible are an acting out of this theme. Eighteen graduates were enrolled in the seminar in 1975. The course is offered in the fall each year. The reading list for the course is presented in Appendix III E.

Maine Maritime Academy

Export-Import Practice and International Trade The economic principles of international trade are examined. The course takes into consideration political as well as economic processes, international organizations, marketing strategies, analysis of freight and traffic, and the importance of tariffs and duties. In the general case it considers maritime transportation as these factors impinge it.

Massachusetts Institute of Technology

International Shipping (M.I.T. and Harvard Staff) This course is given

jointly with the Harvard Graduate School of Business Administration. The scope of the course is fairly broad. The topics include internal operations, financial and marketing issues as well as external market and technological factors; the effect of the world energy crisis and changing trade patterns upon the demand for shipping; and evaluation of shipping capacity requirements in terms of capital needs, the demand for ship construction, and technological alternatives; new ship and terminal facilities for bulk and general cargo vessels; and the effect of changing international relationships on international shipping.

Rutgers University

International Marketing (Dr. Robert G. Vambery) This is primarily an advanced marketing course, dealing with international processes. Marine transportation is treated only briefly under a topic "Transportation and Distribution," and then only its interrelationship with other modes of transportation is stressed.

Tufts University

Fletcher School of Law and Diplomacy

Introduction to the Uses of the Seas (Dr. Ross and Dr. Ciobanu) This course provides a general introduction to marine science and resources and their relationship to international regulations. Geographical, economic, political, and strategic interests in the multiple uses of the seas are examined. Consideration is given to the major trends in the Caracas Conference on the Law of the Sea and their explanation from economic, political and military points of view. The law of the sea is placed in its historical perspective. Some classes may be held at the

Woods Hole Oceanographic Institution. This course is offered in the summer.

Science, Technology, and American Foreign Policy (Associate Professor Pfaltzgraff) This course investigates the relation of science and technology to key issues of foreign policy and to international affairs, particularly international marine affairs. The foreign policy process will be examined with particular emphasis being placed upon scientific and technical factors. The opportunities offered by science and technology for the realization of United States objectives will be examined, with a comparative analysis of science and technology in the foreign policy process of selected other countries. Students are required to prepare two short papers and take a final examination. It is offered in the fall semester.

Univerisity of Miami

Ryder Program in Transportation The principal degree programs at both the undergraduate and graduate levels are offered through the School of Engineering and Environmental Design, and the Center for Urban and Regional Studies for specialization in the field of transportation studies. Specifically regarding marine transportation, the Ryder Program has analyzed the potential of using Biscayne Bay for commuting services, the potential for marine goods movement in the Florida Keys to divert truck traffic from bridges, and has examined urban transportation systems as related to port facilities and economic development.

University of Oregon

International Transportation and Distribution Management (Dr. Roy J. Sampson) This course is primarily concerned with the movement of cargoes. As such, it treats maritime commerce as an intermodal segment of the total transportation function. The general topics include the historical development of and the contemporary international distribution theory; distribution routes and commodity flows; international maritime and aviation law, general peacetime and wartime rules and rights; contemporary ocean and air carriers; national regulation and promotion of international transportation; freight rates and rate-making procedures, shipper and carrier international maritime and aviation insurance; harbor relations and carrier liability; and terminal and hinterland interrelationships. This course has been offered since 1919. It is offered once each year to undergraduates. Average enrollment is thirty-five to fifty students. A course outline is reprinted in Appendix III E.

University of Wisconsin - Green Bay

Transport Systems in Selected World Regions The focus of this course is not on marine transportation per se, but on certain topic areas, i.e., transport regions. It focuses on transportation systems within the United States and specific regions, and external linkages. The coverage relates to maritime transportation in a general sense, but only as maritime transportation interrelates with other modes. The course was first offered in the fall of 1974. It will be offered annually in the fall. A course outline and reading list are included in Appendix III E.

VII

TECHNICAL ASPECTS OF MERCHANT SHIP OPERATION

Maine Maritime Academy

Cargo I, II The objective of these courses is to give the student experience in the handling, stowage, and delivery of cargoes. The topics to be covered include the ship owners' organization for cargo procurement, stowage care and delivery, the carriage of special cargoes, tank vessels and bulk carriers, special grain carriage regulations, containerization, and the research and development in the industry relating to the carriage of cargoes. These courses are offered each year.

State University of New York Maritime College

Marine Cargo Operations This course provides an introduction to the principles and problems of stowage and carriage of general, bulk (dry and liquid), refrigerated, and special cargoes. Students are required to undertake a project in the actual loading and stowage of cargo in a vessel. It is required for all Marine Transportation juniors and is offered every year.

Texas A&M University

Moody College of Marine Sciences and Maritime Resources

Marine Cargo Operations I, II The purpose of these courses is to provide the student with the necessary experience and techniques to function effectively as a shipboard cargo supervisor. He will be able

to properly and effectively load a ship with considerations to long hatches, vessel dispatch, port order of discharge, and cargo gear limitations. The proper methods of securing various cargoes and segregation of cargoes to prevent unnecessary damage will be emphasized. The courses will take the principles of the classroom and the cadets to ships in port to see, firsthand, cargo operations as they are performed. Cargo I is principally concerned with dry cargo--bulk and break-bulk; Cargo II emphasizes bulk liquid and special cargoes. Both courses are offered in the fall and each has expected enrollments of twenty undergraduates. The outlines and reading lists of both courses are presented in Appendix III F.

United States Coast Guard Academy

Hazardous Materials in Marine Transportation This course is taught from the technical aspects of primarily the bulk cargoes carried in modern ocean-going vessels. It is offered to all cadets who have satisfactorily completed the required one-year sequence in general chemistry. The course was first offered in the spring of 1975 on an elective basis.

United States Merchant Marine Academy

Cargo I, II These courses are offered to provide the fundamentals of cargo handling of specialized cargoes such as ore, grain, petroleum products, and refrigerated goods. Proper loading, stowage, handling and delivery techniques are emphasized. Both courses are offered once each year. The course outlines are included in Appendix III F.

Tanker Operations This course prepares graduates to assume the responsibilities of a Ship's Officer aboard tankers and includes an introduction to the oil industry, watch officer duties at sea and in port, significant properties of petroleum products, tanker piping systems, cargo handling, tank cleaning, ballasting, safety procedures and equipment, the economics of tanker operations, and a study of VLCCs and oil-bulk-ore vessels.

VIII

ADMIRALTY AND MARITIME LAW

California Maritime Academy

Maritime Law This course examines the rights, obligations, and responsibilities of seamen, master, and pilots as described by the laws and regulations of the United States. The maintenance of essential ship's papers, records and reports is emphasized. Marine insurance is described as it affects hull and cargo, indicating the legal and financial responsibilities resulting from collisions, cargo negligence, mismanagement, seaman's death and injury suits, maritime liens and torts. Also considered are federal and international laws affecting trade routes, mortgages, bills of lading, letters of credit, piracy, conferences on rates, anti-trust law, dry cargo and tanker chartering, World Scale and ATRS charter parties and rates, salvage and procedures of British and American admiralty courts, and admiralty law and its history. It is offered each year.

Dalhousie University School of Law

Admiralty I (Professor Edgar Gold, and D. A. Kerr, Q.C.) This is an introductory survey course in shipping law which has been given for many years. It is a one semester course and is offered both semesters-- in the fall by Professor Gold and in the spring by Professor Kerr, a practicing barrister.

Admiralty II (Professor Edgar Gold) This is an advanced course in shipping law concentrating in the area of marine collision and salvage

and admiralty course practice. This is a newly inaugurated course (1975).

Admiralty III (Professor D. M. Johnston) This is an advanced course which examines, inter alia, the public and private law interface of marine policy. This is a new course (1975).

Dalhousie is also at present planning to offer an additional course in Marine Insurance in the near future.

George Washington University

The National Law Center

Admiralty (Professor David J. Sharpe) Designed to provide the student with a thorough understanding of the essentials of Admiralty Law, Professor Sharpe's course emphasizes the case history approach. The casebook currently in use is Admiralty Cases and Materials, Healy & Sharpe (West 1974).

Georgetown University Law Center

Admiralty (Professor Gerald A. Malia) The first part of this course closely follows the presentation of topics in the Admiralty text by Healy and Sharpe. The course is a study of topics such as injuries to seamen and maritime workers, maritime liens, waterborne carriage of goods, salvage, general average, maritime collision, towage and pilotage, and the limitations of liability for marine pollution. The second part of the course centers on the study of the administrative law aspects of maritime law, and follows the presentation contained in a supplementary text by Professor Malia, Maritime Law: Administrative Cases and Materials, 1975. The course here touches upon major current issues

such as national shipping policy, environmental and pollution control problems, and international shipping issues. A copy of the table of contents of this text is presented in Appendix III G.

Transportation Regulation (Professors Stanton Sender and Robert Calhoun)

In 1974, one meeting of two hours of the Transportation Regulation course was devoted to Water Carrier Regulation and the Federal Maritime Commission. At this meeting, then Federal Maritime Commission Commissioner George Hearn joined the class for the discussion. The course outline for the spring semester of 1974 is included in Appendix III G. In 1976, the material on air and maritime regulation has been dropped from the course. This is because of an increased interest in rail and motor carrier regulatory reform legislation. However, when the Transportation Regulation course is offered in the future, the discussions on air and maritime regulations will again be included.

Harvard Law School

Admiralty (Professor Donald T. Trautman) This course presents an introduction to a few of the important problems of admiralty jurisdiction and maritime law. The focus has been on questions of the division of jurisdiction between federal admiralty courts and state or common law courts (both in modern times and in earlier practice in English and American courts) and the allocation of law-making authority in this country between the national and state governments. Many of these problems tend to center on activities in the port or to and from the port, giving rise to problems in tort, contract and property.

International Law: The Law of International Trade (Professor Berman)

This course is a study of the problems of commercial, administrative, and international law arising from trade. In contrast to the Admiralty course, Professor Berman's course places greater emphasis on the commercial aspects of international transportation in all modes and on the regulation of transportation by international authority.

Maine Maritime Academy

Admiralty Law This is a survey course intended to give the student an understanding of the scope and principles of admiralty law. The course covers marine insurance, carriage of goods under bills of lading, charter parties, general average, the rights of seamen and workers, salvage, collision, maritime liens, mortgages, the limitation of liability, and an examination of the scope of government regulation of shipping.

Marine Insurance This consists of an examination of the principles and practices of the marine insurance industry. Particular emphasis is placed on marine underwriting and loss adjustment, and cargo, hull and indemnity insurance.

McGill University School of Law

Admiralty (Mr. Knox) This course presents a study of the admiralty courts and jurisdiction, liens, carriage of goods by sea, salvage, marine collisions, and limitations of liability. It is offered each year.

State University of New York Maritime College

Business Law for Ship Operators This is a survey course which provides an introduction to the common legal problems, excluding those of Admiralty

Law, which confront a ship operator. It is a study of the law of contract agency sales, negotiable instruments, and property. This is a senior elective and is offered every year.

Maritime Law I and II These two courses present the history and development of the modern admiralty law. Fundamental legal problems connected with ocean shipping and other branches of the maritime industry are analyzed. This course is offered every year and is required for all Marine Transportation seniors.

Transportation Insurance This upper division course presents the student with principles of underwriting and loss adjustment as applied to the policies and problems of transportation insurance. The course is offered each year and is required for all Marine Transportation seniors.

Transportation Regulatory Law This course provides an introduction to the regulation of common carriers. Particular emphasis is placed on transportation law and regulatory practices. Principles investigated are applied in regulatory agency cases and court decisions. The course is offered every other year and is open to seniors as an elective.

Texas A&M University

Moody College of Marine Sciences and Maritime Resources

Maritime Law I, II These courses provide an intensive study of the International and U. S. Rules for the Prevention of Collisions at Sea. The new International Rules, to come into effect in 1976, will also be analyzed. A thorough study of maritime law as related to the shipping industry is intended. The student will be presented with an analysis

of the state of the law relating to marine insurance, rights of seamen, maritime liens, ship mortgages, salvage rights, general average limitation of liability, and international law for the ship's officers.

Outlines of the courses are reprinted in Appendix III G. The Maritime Law I course is offered each spring, with an average enrollment of fifteen undergraduates; Maritime Law II in the fall, average enrollment is fifteen undergraduates.

Marine Insurance This course is designed to illustrate the different "risks" which the deck officer in the Merchant Marine will come into contact with. Topics to be covered include blue water hull and river collision insurance, wharfingers liability, contracts, bills of lading, pollution and products insurance, seamen's rights, limitation of liability, and salvage rights.

United States Merchant Marine Academy

Marine Insurance The course constitutes an examination of the principles and practices and the marine insurance industry. Emphasis is placed on the ocean hull policy, ocean cargo policy, and the disbursement endorsement; the analysis of adjustments of general average, particular average, and total loss; and the analysis of the relation of marine insurance to the development of international commerce. A course outline is found in Appendix III G.

Advanced Admiralty Law This course utilizes the casebook approach that is currently employed at the law school level to develop the substantive areas of maritime law studied in the introductory admiralty law course. New topics include limitation of liability, remedies of maritime government employees, longshoremen and harbor workers.

University of British Columbia School of Law

Maritime Law (Professor J. R. Cunningham) Maritime law has been defined as a body of legal rules partly substantive, partly procedural, which has grown up around the shipping industry. Maritime law is often considered a category of private international law rather than a branch of domestic or municipal law and, in practice, judges of maritime nations often refer to the decisions of maritime courts of other nations. A relaxed attitude is also customarily taken towards the principles of conflict of laws on the ground that the rules of maritime law are world-wide in scope, and many of the rules referred to have become firmly fixed in world-wide commercial use. The best known example is the international use of the "Hague Rules" relating to bills of lading, so known because they were originally formulated and recommended for international adoption at a meeting of the International Law Association held at The Hague. They have since been incorporated as part of the domestic law of most maritime countries--in Canada by the Carriage of Goods by Water Act; in the United States by the Carriage of Goods by Sea Act and in England by the Carriage of Goods by Sea Act. The Rules are incorporated in most international bills of lading by reference to the statute of the carrier's own country which incorporates the Hague Rules, or by reference to the Hague Rules themselves. This course seeks to introduce students to the scope and principles of maritime law as practiced in Canada. Reference is also made to English and American rules. This course has been offered since the academic year 1947-48 and will be offered each year in the fall. A course outline is presented in Appendix III G.

University of DelawareCollege of Marine Studies

Maritime Law (Professor Joseph Bockrath) This course has been designed to provide the essential principles of maritime law. It presents a thorough study of the existing law with emphasis on case histories. Students will analyze maritime cases as reviewed by the United States Supreme Court. This course was first offered in the spring of 1975 and will be offered once each year. The expected average enrollment is six to ten graduate and undergraduate students. The course outline and a list of cases are presented in Appendix III G.

University of Michigan Law School

Admiralty (Professor Roy F. Proffitt) Admiralty was first offered as a regular course in 1923-24, and at that time was described as "an exposition of the leading principles of admiralty jurisdiction and of the maritime law, including the law governing maritime liens, bottomry and respondentia obligations, affreightment and charter parties, salvage and maritime torts." The course has been offered each year since then, at two hours credit. The course description has changed somewhat and now reads: "a study of admiralty jurisdiction and of selected topics in the maritime law, including maritime liens, injuries to seamen and other maritime workers, and carriage of goods, charter parties, salvage, general average, collision, limitations of liability, and the relations of the maritime to local law." The casebook currently being used is Healy & Sharpe, Admiralty Cases and Materials, West 1974.

APPENDICES

APPENDIX I

COURSES LISTED BY INSTITUTION

Arizona State University

Economic Geography
Geography of Energy - Dr. H. Reid Wagstaff
Transportation Geography - Dr. H. Reid Wagstaff

California Maritime Academy

Economic Geography
Economics of Sea Transport
Management Analysis and Labor Relations
Marine Transportation I & II
Maritime Law
Petroleum Transportation Management
Pollution Control and Laws
Transportation Management I & II

Dalhousie University School of Law

Admiralty I - Professor Edgar Gold and D. A. Kerr, Q.C.
Admiralty II - Professor Edgar Gold
Admiralty III - Professor D. M. Johnston

Florida State University

Advanced Graduate Seminar in Port/Hinterland Relationships -
Dr. William A. Rabiega
Introduction to Transportation - Dr. William A. Rabiega

George Washington University, The National Law Center

Admiralty - Professor David J. Sharpe

Georgetown University Law Center

Admiralty - Professor Gerald A. Malia
Transportation Regulation - Professors Stanton Sender and Robert Calhoun

Harvard Law School

Admiralty - Professor Donald T. Trautman
International Law: The Law of International Trade - Professor Berman

Johns Hopkins University, School of Advanced International Studies

Ocean Policy Seminar - Dr. Robert Friedheim

Maine Maritime Academy

Admiralty Law
Cargo I & II
Export-Import Practice and International Trade
Managerial Economics
Marine Insurance
Maritime Shipping Economics
Problems in Transportation Seminar
Shipyards Management
Ship Business and Industrial Relations

Massachusetts Institute of Technology

Course XIII-B

International Shipping - M.I.T. and Harvard Staff

Management of Marine Systems - Dr. H. S. Marcus

Marine Decision Making Under Uncertainty - Dr. J. W. Devanney

Marine Transportation Economics - Dr. J. W. Devanney and Dr. H. S. Marcus

Network Scheduling, Routing and Planning - Dr. E. G. Frankel

Reliability, Availability and Maintainability of Systems - Dr. E. G. Frankel

Ship Production Analysis - Dr. E. G. Frankel

McGill University School of Law

Admiralty - Mr. Knox

North Carolina State University at Raleigh

Water Transportation - Dr. Paul D. Cribbens

Rutgers University

International Marketing - Dr. Robert G. Vambery

Ocean Trade and Transportation - Mr. David Glickman

Problems in Port Geography - Dr. Guido Weigend and Mr. David Glickman

Transportation Economics - Dr. Robert G. Vambery

State University of New York Maritime College

Advanced Transportation Seminar

Business Law for Ship Operators

Labor Economics

Marine Cargo Operations

Maritime Law I & II

Ocean Traffic and Export-Import Practice

Ocean Transportation

Physical Distribution Systems

Seminar in Transportation Economics

Seminar Transportation Management

Transportation Insurance

Transportation Regulatory Law

Texas A&M University, Moody College of Marine Sciences and Maritime Resources

Cargo I & II

Introduction to Maritime Systems Engineering

Marine Insurance

Maritime Law I & II

Ocean Transportation

Port Operations, Administration and Management

Tufts University, Fletcher School of Law and Diplomacy

Introduction to the Uses of the Seas - Dr. Ross and Dr. Ciobanu

Science, Technology, and American Foreign Policy - Associate Professor

Pfaltzgraff

United States Coast Guard Academy

Transportation of Hazardous Materials

United States Merchant Marine Academy

Cargo I & II
 Domestic Shipping
 Labor Relations
 Marine Insurance
 Marine Management
 Seaport Management
 Ship Chartering and Brokerage
 Tanker Operations
 Tanker Terminal Operations
 Theory of Marine Operations
 Transportation Economics - Commander Sigmund Kirschen

University of British Columbia, The Center for Transportation Studies

Maritime Law - Professor J. R. Cunningham
 Water Transportation - Professor H. G. Wilson

University of California at Berkeley

Harbors, Ports and Offshore Terminals

University of Delaware, College of Marine Studies

Maritime Law - Professor Joseph Bockrath

University of Hawaii

Coastal and Harbor Engineering II - Dr. Frans Gerritsen
 Introduction to Freight Transportation - Dr. David Bess

University of Maryland

Water Transportation - Mr. Mattingly

University of Miami

Ryder Program in Transportation

University of Michigan

Admiralty - Professor Roy F. Proffitt
 Economics of Ship Design - Professor Harry Benford
 Maritime Management - Professor Harry Benford

University of Oregon

International Transportation and Distribution Management - Dr. Roy J. Sampson

University of Pennsylvania, Wharton School

Economics of Transportation - Dr. W. Bruce Allen
 Government and the Transport Industry - Dr. Aaron Gellman
 Governmental Role in Transportation - Staff

University of Rhode Island

Marine Transportation - Dr. G. A. Motte
 Ocean Engineering Systems Studies - Dr. Herman Sheets

University of Washington

Geography of Ocean Transportation - Dr. Douglas K. Fleming
 Marine Uses: Transportation and Commerce - Dr. Douglas K. Fleming

University of Wisconsin - Green Bay
Transport Systems in Selected World Regions

University of Wisconsin - Milwaukee
Maritime Transportation - Dr. Harold M. Mayer

APPENDIX II

A

INSTITUTIONS RESPONDING TO THE SURVEY
AND OFFERING COURSES RELATED TO MARINE TRANSPORTATION

Arizona State University
Dr. H. Reid Wagstaff
Department of Geography
Tempe, AZ 85281

California Maritime Academy
Dean Rory K. Miller
P.O. Box 1392
Vallejo, CA 94590

Dalhousie University School of Law
Professor Edgar Gold
Halifax, Canada B3H 4H9

Florida State University
Dr. William A. Rabiega
Department of Geography
Tallahassee, FL 32306

Georgetown University Law Center
Dean Lee S. Adams
Washington, DC 20001

George Washington University
Professor David J. Sharpe
The National Law Center
Washington, DC 20052

Harvard Law School
Professor David T. Trautman
Cambridge, MA 02138

Johns Hopkins University
Dr. Robert Friedheim
School of Advanced International Studies
1740 Massachusetts Avenue, N.W.
Washington, DC 20036

Maine Maritime Academy
Mr. Bruce S. Zimmerman
Castine, ME 04421

Massachusetts Institute of Technology
Dr. Ira Dyer
Center for Transportation Studies
School of Engineering
Department of Ocean Engineering
Cambridge, MA 02139

McGill University School of Law
Dean John E. C. Brierley
Chancellor Day Hall
3644 Peel Street
Montreal, Canada H3A 1W9

North Carolina State University at Raleigh
Dr. Paul D. Cribbens
Department of Civil Engineering
Box 5993
Raleigh, NC 27607

Rutgers University
Dr. Guido G. Weigend
Department of Geography
185 College Avenue
New Brunswick, NJ 08903

Dr. Robert G. Vambery
Graduate School of Business Administration
Transportation Studies
92 New Street
Newark, NJ 07102

State University of New York Maritime College
Captain William R. Porter
Fort Schuyler, Bronx
New York, NY 10465

Texas A&M University
Dr. W. T. McMullen
Moody College of Marine Sciences and Maritime Resources
P.O. Box 1675
Galveston, TX 77550

Tufts University
Dean Edmund A. Gullion
The Fletcher School of Law and Diplomacy
Medford, MA 02155

United States Coast Guard Academy
B. S. Gathy
Marine and Ocean Engineering Section
New London, CT 06320

United States Merchant Marine Academy
Commander Sigmund Kirschen
Marine Transportation
Kings Point, NY 11204

University of British Columbia
Professor J. R. Cunningham
School of Law
Vancouver, Canada V6T 1W5

Dr. Trevor D. Heaver
The Center for Transportation Studies
Vancouver, Canada V6T 1W5

University of California at Berkeley
College of Engineering
Berkeley, CA 94720

University of Delaware
Professor Joseph Bockrath
Center for the Study of Marine Policy
College of Marine Studies
Newark, DE 19711

University of Hawaii
Dr. David Bess
College of Business Administration
2404 Maile Way
Honolulu, HI 96822

Dr. Frans Gerritsen
Department of Ocean Engineering
2565 The Mall
Honolulu, HI 96822

University of Maryland
Dr. Burt A. Leete
College of Business and Management
Transportation, Business and Public Policy
College Park, MD 20742

University of Miami
Dr. Anthony J. Catanese
Ryder Program in Transportation
Coral Gables, FL 22124

University of Michigan
Professor Harry Benford
Department of Naval Architecture and Marine Engineering
445 West Engineering Building
Ann Arbor, MI 48104

Professor Roy F. Proffitt
Law School
Hutchins Hall
Ann Arbor, MI 48104

University of Oregon
Dr. Roy J. Sampson
College of Business Administration
Eugene, OR 97403

University of Pennsylvania
Dr. David E. Boyce
Wharton School
Transportation Program
3718 Locust Walk Cr.
Philadelphia, PA 19174

University of Rhode Island
Dr. Herman E. Sheets
College of Ocean Engineering
Kingston, RI 02881

Dr. G. A. Motte
Department of Fisheries and Marine Technology
Kingston, RI 02881

University of Washington
Dr. Douglas K. Fleming
Department of Geography
Seattle, WA 98185

University of Wisconsin - Green Bay
Dr. Donald Gandre
Department of Regional Analysis
Green Bay, WI

University of Wisconsin - Milwaukee
Dr. Harold M. Mayer
Department of Geography
Milwaukee, WI 53201

APPENDIX II

B

INSTITUTIONS RESPONDING TO THE SURVEY
AND NOT OFFERING COURSES RELATED TO MARINE TRANSPORTATION

Arizona State University

Dr. Louis A. Hill, Jr.
College of Engineering Sciences
Department of Civil Engineering
Tempe, AZ 85281

Auburn University

College of Engineering
Auburn, AL 36830

Dr. James W. Adams
School of Business
Department of Marketing and Transportation
Auburn, AL 36830

Claremont Graduate School

Dr. Fred Warner Neal
Program in International Relations
Claremont, CA 91711

Florida Atlantic University

Dr. Ailliam Tessin
Department of Ocean Engineering
Boca Raton, FL 33432

Florida Institute of Technology

Rear Admiral O. D. Walters, Jr.
Oceanography and Ocean Engineering
Melbourne, FL 32901

George Washington University

Dr. Burton M. Sapin
School of Public and International Affairs
1908 G Street, N.W.
Washington, DC 20052

Harvard University

College of Engineering
Cambridge, MA 02138

Dr. Don K. Price
John Fitzgerald Kennedy School of Government
Cambridge, MA 02138

Lehigh University

Dr. Brian G. Brockway
College of Business and Economics
Bethlehem, PA 18105

Louisiana State University

Dr. Bernard S. Pressburg
College of Engineering
Baton Rouge, LA 70803

Dr. Donald E. Vermeer
Department of Geography and Anthropology
Baton Rouge, LA 70803

Michigan State University

Dr. George VanDusen
College of Engineering
East Lansing, MI 48823

Mississippi-Alabama Sea Grant Consortium

Dr. George F. Crozier, Associate Director
Ocean Springs, MS 39564

(This includes the following institutions: Auburn University,
Mississippi State University, University of Alabama, and
University of Mississippi.)

Ohio State University

Dr. B. LaLonde
College of Business Administration
Columbus, OH 43210

Princeton University

Dr. Charles H. Berry
Woodrow Wilson School of Public
and International Affairs
Princeton, NJ 08540

Purdue University

Dr. John S. Day
School of Industrial Management
Krannert Building
West Lafayette, IN 47907

State University of New York

Dr. J. R. Schubel
Marine Sciences Research Center
Stony Brook, NY 11794

Syracuse University

Dr. Guthrie S. Birkhead
The Maxwell School of Citizenship and Public Affairs
217 Maxwell Hall
Syracuse, NY 13210

Texas A&M University
Dr. C. Pennington
Department of Geography
College Station, TX 77843

United States Naval Academy
Department of Naval Architecture
Annapolis, MD 21402

University of Alaska
Dr. John M. Hilpert
Division of Mathematics and Engineering
3211 Providence Drive
Anchorage, AK 99504

University of Chicago
Dr. Richard N. Rosett
Graduate School of Business
5836 Greenwood Avenue
Chicago, IL 60637

University of Houston
Mr. Gary A. Teixeira
College of Business Administration
Houston, TX 77004

Dr. Phillip Bacon
Department of Geography
Houston, TX 77004

University of Maryland
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College of Engineering
College Park, MD 20742

University of Miami
Dr. Edward J. Fox
School of Business Administration
P. O. Box 248027
Coral Gables, FL 33124

University of Michigan
Mrs. Betty J. Potter
Graduate School of Business Administration
Ann Arbor, MI 48104

Dr. John D. Nystuen
The Ph.D. Program in Urban and Regional Planning
Samuel Trask Cana Building
Ann Arbor, MI 48104

University of Oregon
Dr. Alvin W. Urquhart
Department of Geography
Condon Hall
Eugene, OR 97403

University of Rhode Island
College of Business Administration
Kingston, RI 02881

University of Virginia
Dr. William W. Sihler
The Colgate Darden Graduate School of Business Administration
Box 3607
Charlottesville, VA 22903

University of Washington
Dr. Wallace I. Little
Division of Transportation-Logistics
Seattle, WA 98105

University of Wisconsin - Green Bay
Dr. Francis A. Sailer
School of Professional Studies-Managerial Systems
Green Bay, WI 54302

APPENDIX III

SYLLABI OF SELECTED COURSE OFFERINGS

A

WATER TRANSPORTATION AND THE GEOGRAPHY OF THE SEA TRADE

Florida State University. Introduction to Transportation
(Dr. William A. Rabiega)

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Commission on College Geography Resource Paper, No. 9. A.A.A.G.:
Washington, D.C., 1971.

Articles and Monographs

- Abbreviations: A.A.A.G. = Annals of the Association of American Geographers
E.G. = Economic Geography
G.R. = Geographical Review
G.A. = Geographical Analysis
J. of R.S. = Journal of Regional Science
P. & P.R.S.A. = Papers and Proceedings of the Regional Science
Association
Trans. Sci. = Transportation Science

- *** = article required of all students
** = article required of graduate students
* = article recommended

General

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Graph Analysis

- Black, W. R. "An Iterative Model for Generating Transportation Networks,"
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5 (1971), pp. 212-221.
***Werner, C. "Networks of Minimum Length," E.G., 13 (1969), pp. 47-69.

Commodity Flows

- ***Smith, R. H. T. "Concepts and Methods in Commodity Flow Analysis," E.G.,
46 (1970), pp. 404-416.

Florida State University

- *Suzuki, K. "Observations on the Stability of the Structure of the Inter-regional Flows of Goods," J. of R.S., 11 (1971), pp. 187-209.
- *Wollmer, R. D. "Maximizing Flow Through a Network with Node and Arc Capacities," Trans. Sci., 2 (1968), pp. 213-232.

Waterborne Commerce

- Appelgren, L. H. "A Column Generation Algorithm for a Ship Scheduling Problem," Trans. Sci., 3 (1969), pp. 53-68.
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- Dickson, K. B. "Evolution of Seaports in Ghana: 1800-1928," A.A.A.G., 55 (1965), pp. 99-111.
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- Forward, C. N. "A Comparison of Waterfront Land Use in Four Canadian Ports: St. John's Saint John, Halifax, and Victoria," E.G., 45 (1969), pp. 155-169.
- Gould, P. R. Transportation in Ghana, Northwestern University Studies in Geography, No. 5, Evanston, Illinois: Department of Geography, Northwestern University, 1960.
- *Kenyon, J. "Elements in Inter-Port Competition in the United States," E.G., 46 (1970), pp. 1-24.
- Levin, A. "Scheduling and Fleet Routing Models for Transportation Systems," Trans. Sci., 5 (1971), pp. 232-255.
- *Patton, D. J. "General Cargo Hinterlands: of New York, Philadelphia, Baltimore, and New Orleans," A.A.A.G., 48 (1958), pp. 436-455.
- ***Rimmer, P. J. "The Changing Status of New Zealand Seaports, 1853-1960," A.A.A.G., 57 (1967), pp. 88-100.
- Rimmer, P. J. "Recent Changes in the Status of Seaports in the New Zealand Coastal Trade," E.G., 43 (1967), pp. 231-243.
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- ***Rodgers, A. L. "The Port of Geneva: External and Internal Relations," A.A.A.G., 48 (1958) pp. 319-351.
- Schwartz, N. L. "Discrete Programs for Moving Known Cargoes from Origins to Destinations on Time at Minimum Bargeline Fleet Cost," Trans. Sci., 2 (1968), pp. 134-145.
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- ***Sweet, D. C. and Maggled, H. S. "Analysis of a Port's Hinterland," Battelle Technical Review, October 1967; pp. 1-8.
- *Weigend, G. G. "The Problem of Hinterland and Foreland as Illustrated by the Port of Hamburg," E.G., 32 (1952), pp. 1-16.
- ***Weigend, G. G. "Some Elements in the Study of Port Geography," G.R., 48 (1958), pp. 185-200.

Florida State University

Schedule of Presentation

Week 1: General Introduction
 1. The role of transportation
 2. Delimitation of modes
 3. Definitions used in transport
 4. Approaches to the study of transportation in geography
 Readings: S & F 1-15, 49-102

Week 2: Freight-Rate Structures
 Readings: S & 141-206

Week 3: Regulation
 Readings: S & F 243-320

Week 4 & 6: See below

Week 5: Data on Transportation Systems and Commodity Flows
 Library Assignment

Week 4 & 6: Methodology for Analysis of Transportation Systems and
 Commodity Flows
 1. Graph analysis
 2. Gravity models
 a. Simple
 b. Hypothetical mode method
 3. Linear programming
 4. Linear regression
 Readings: Scott and appropriate articles

Week 7: Rail and Highway Transport
 Readings: appropriate articles

Week 8: Air Transportation and Travel
 Readings: appropriate articles

Week 9: Waterborne Commerce
 Readings: appropriate articles

Week 10: Economic Development and Transportation
 Readings: appropriate articles

S & F = Sampson and Farris
 See bibliography for appropriate articles

Appendix III A
 North Carolina State University. Water Transportation
 (Dr. Paul D. Cribbens)

Course Outline

Topic	Periods
A. The Maritime Challenge	3
1. Course Organization	
2. Selection of Transport Technology	
3. Government Promotion and Regulation	
B. Domestic Waterway System	4
1. Great Lakes and St. Lawrence Seaway	
2. U. S. Inland Waterway System	
3. Mississippi and Ohio River Navigation Systems	
4. Capacity Analysis: Barge and Lock Design	
C. International Trade and Shipping	7
1. Commodity Flow Projections	
2. Dimensions of the Energy Crisis	
3. World Petroleum and Gas Dilemma	
4. Crude Oil Production and Tanker Movements	
5. Dry Bulk Commodities: Ores and Coal	
6. Other Bulk and Neo-Bulk Cargoes	
7. General Cargo and Containerization	
D. Ship Operations: Maritime Problems	3
1. Ship Types and Nomenclature	
2. Subsidies: Management and Labor Relations	
3. Measures of Merit for Ship Design	
E. Planning and Design of Ports and Harbors	7
1. Operation of Port Facilities	
2. Terminal Design	
3. Harbor and Port Planning	
4. Winds, Waves, Tides and Currents	
5. Coastal Structures	
6. Design of Marine Structures	
7. Design Project	
F. Miscellaneous	4
1. Field Trip	
2. Exams	
3. Final Design Presentation	

Appendix III A
 Rutgers University. Ocean Trade and Transportation
 (Mr. David Glickman)

Course Outline

1. Structure of world trade; volume and composition of ocean borne cargo movements; major ocean trade routes; major commodity movements; U. S. oceanborne foreign trade.
2. Types and functions of ships; categories of cargo movements; general, specialized, bulk cargo ships, supertankers; containerships.
3. Types of shipping services; liner, tramp, proprietary carriers; chartering of ships; shipping conferences.
4. Structure and composition of the world's merchant fleet; U. S. and foreign merchant marine policy; subsidies and cargo preference.
5. Site, structure and function of the port; port hinterlands and service areas.
6. Functional classification of ports; harbor and port characteristics and requirements.
7. The port planning function; comprehensive and functional facility planning and development; economics of planning; impact of technological developments in ocean shipping and port planning and development.
8. Port organizations and administration; federal, state and regional functions and responsibilities; functions and responsibilities of port authorities; comparison of U. S. and foreign experiences.
9. Factors affecting port commerce and competition.
10. The port and the community; economic impact of the port with local, regional and national economies.

Bibliography

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Rutgers University

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- Port of New York Authority, Container Shipping: Full Ahead, 1967.
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Appendix III A
 Rutgers University. Problems in Port Geography
 (Dr. Guido Weigend and Mr. David Clickman)

Bibliography

- A. Read: Port of New York Authority. Metropolitan Transportation - 1980.
 New York: Comprehensive Planning Office, Port of New York
 Authority, 1963. Chapters 9, 10, 11, 12, 18.
- B. Skim the following publications of the Port of New York Authority and
 read sections of interest:
1. Annual Report. 1970.
 2. Container Shipping: Full Ahead. May 1967.
 3. The New York Port Handbook. 1971.
 4. The Next Twenty Years...1965-1985.
 5. A Plan for a New Consolidated Passenger Ship Terminal in the Port
 of New York. April 1967.
 6. The Port and the Community. May 1956. Reprinted March 1963.
 7. Transportation by Helicopter 1955-1975. November 1952.
 8. Via Port of New York. Published monthly.
 9. The Port of New York's Foreign Trade. 1971.
- C. Of special interest to everyone is the following publication of the Port
 of New York Authority:
A Selected Bibliography, 1921-1968. 1969.
 Previous publications are for the years: 1921-1962, 1921-1964, 1921-1966.

Reading List: General Port Geography

- Alexandersson, Gunnar and Nordström, Göran. World Shipping, New York:
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Rutgers University

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- Thoman, Richard S. Free Ports and Free-Trade Zones, Cambridge, Maryland: Cornell Maritime Press, 1956, Ch. I, VI.

Appendix III A
 Texas A&M Univeristy, Moody College of Marine Sciences and Maritime Resources.
Ocean Transportation

Two textbooks are required:

- Shipping Out, by Mariam G. Sherar, 1973
The Business of Shipping, by Lane C. Kendall, 1973

Course Outline

- Week 1: Shipping Out, pp. 1-18
 The Business of Shipping, pp. 1-32
- Week 2: Discussion of Term Projects
 Assignment of Term Projects
 Shipping Out, pp. 19-37
 The Business of Shipping, pp. 32-70
- Week 3: Shipping Out, pp. 38-57
 The Business of Shipping, pp. 71-114
 Examination
- Week 4: Shipping Out, pp. 58-72
 The Business of Shipping, pp. 115-148
- Week 5: Project Research
- Week 6: The Business of Shipping, pp. 175-214
 Mid-Semester Examination
 Project Research
- Week 7: Project Presentation
- Week 8: Project Presentation
- Week 9: The Business of Shipping, pp. 149-174
 Project Presentation
- Week 10: The Business of Shipping, pp. 175-214
 Project Presentation
 Examination
- Week 11: The Business of Shipping, pp. 215-284
 Project Presentation
- Week 12: The Business of Shipping, pp. 285-322
- Week 13: Project Presentation
- Week 14: Review
- Week 15: Final Examination

Moody College

Term Projects

1. The Unlicensed Union Contracts. The study and presentation of existing contracts for unlicensed crewmembers under the N.M.U. and S.I.U.
2. The Licensed Union Contracts. The study and presentation of existing contracts for licensed deck and engineering officers. How rotary shipping works under union shipping rules and regulations. Include M.M.P., M.E.B.A. #1 and M.E.B.A. #2.
3. The Independent Unions. The study and presentation of existing contracts for licensed deck and engineering officers. Such unions have contracts with Texaco, Gulf, Exxon, Reynolds Metals, etc.
4. The Role of the U.S. Government (MARAD) in promoting programs to increase private utilization of U.S. Flag Ships. A cooperative effort by government, labor and management.
5. A Comparative Study of Modern Ports in the U.S. and Europe.

Appendix III A
 United States Merchant Marine Academy. Marine Transportation

Course Outline

Textbook: The Business of Shipping, 1973, Lane C. Kendall

Week 1: Assignment - Week 1 & 2

1. Kendall - Introduction, Chapters I and XXIII
2. Appendix D (on regulation of the modes)

Topic

1. Transportation--Its Role in the Economy
 - a. Physical Distribution
 - 1) Inventory Control
 - 2) Warehousing
 - 3) Plant and Warehouse Location
 - 4) Purchasing
 - 5) Packaging
 - 6) Transportation
 - a) Modes of Transportation
 - (1) General Cost/Service Package of Each
 - (2) Regulation of Each
 - b. National Interest in Transportation--Especially National Flag Fleets
 - 1) Merchant Shippings Commercial Role
 - 2) Military Role
 - 3) Other Economic and Political Roles

Week 2: Assignment - (Same as First Week)

Topic

2. History of the United States Merchant Marine
 - a. The Colonies and Shipping/Shipbuilding
 - b. The History of Aid to the Shipbuilding and Operating Industries
 - 1) The History of Maritime Subsidies
 - a) Nineteenth Century Mail Subsidies; Political, Military, and Commercial Reasons for Such Aid
 - b) U. S. Subsidy Legislation Prior to 1936
 - c) The Present Day Rationale for Subsidies to the U. S. Merchant Marine

Week 3: Assignment - (Weeks 3, 4, & 5)

1. Kendall, Chapter XXII
2. Marad Pamphlet on Shipping Subsidies of the World: "Federal Aid to the Maritime Industries"
3. "The Economics of Federal Subsidy Programs" by Gerald Jantscher, Joint Economic Committee of the 93rd Congress

Topic

3. The Merchant Marine Act of 1936 (and Management Legislation) as Amended Through the Merchant Marine Act of 1970
 - a. The Merchant Marine Act of 1936

U. S. Merchant Marine Academy

- 1) Statutory Framework
- 2) Essential Trade Route Concept
- 3) Parity Concept
- 4) Construction and Operating Differential Subsidies

Week 4: Assignment - (Same as Third Week)

Topic

4. The Role of the Secretary of Commerce, Marad, and FMC
 - a. Other Financial Aids
 - b. Devices Designed to Protect Government Interests
 - c. Capital Reserve Funds
 - d. Cargo Preferences
 - e. National Defense Features

Week 5: Assignment - (Same as Third Week)

Topic

5. The Merchant Marine Act of 1970
 - a. Basic Changes from 1936 Act
 - b. Construction Subsidies
 - c. Operational Subsidies
 - d. Bulk Carriers, Tankers and Great Lakes Shipping
 - e. Grandfather Clause
 - f. Evaluation of Act, the Report of the Commission on American Shipbuilding
- Midquarter Examination

Week 6: Assignment - Statistics on the Current Status of the U. S. Fleet, the World Fleets and the Tanker Fleet of the World. References: Merchant Fleets of the World-Marad, Analysis of World Tank Ship Fleet-Sun Oil Company, Monthly Reports on Status of U. S. Fleet, Marad

Topic

6. The Present Status of the U. S. Flag Fleet
7. The Present Status of the World Merchant Fleet
8. The Present Status of the World Tanker Fleet
9. Analysis of Reasons Underlying Present Position of U. S. Merchant Marine

Week 7: Assignment - Naval Institute Proceedings, "Flags of Whose Convenience" by John J. Clark, October 1968, Comments by L. C. Kendall, July 1969

Naval Institute Proceedings, May 1971, "Capable of Serving as a Naval and Military Auxiliary" by L. C. Kendall "U. S. Effective Control Fleet" by S. W. Emery, Jr.

Week 8: Assignment - Kendall, Chapters II, III, XVIII, XXI. Current Publications on Tanker and Oil Market

Topic

10. Tankers; Other Bulk Carriers
 - a. Cargoes Carried
 - b. Demand for Oil and the Flow of Oil in the World
 - c. U. S. Demand For, and Use of Oil
 - d. The Tankers Market

U. S. Merchant Marine Academy

- e. LNG
- f. Bulk Carriers of Dry Cargoes
 - 1) Cargoes Carried
 - 2) World Flows
 - 3) U. S. Role
- g. Competition for Bulk Cargoes
 - 1) Liner (Conference and Non-Conference)
 - 2) Tramp
 - 3) Tankers
 - 4) Bulk Carriers
 - 5) Combination Carriers (Ore/Bulk, Bulk/Oil, Ore/Bulk/Oil)

Week 9: Assignment - Kendall, Chapters X, XI, XII

Topic

- 11. Freight Rates and Conferences
 - a. Factors of Costs in Ratemaking
 - b. Cost of Service vs. Value of Service Ratemaking
 - c. The Competitive Environment of Ratemaking
 - d. The Steamship Conference System
 - 1) The Shipping Act of 1916
 - 2) The Steamship Conference System
 - 3) The Exclusive Patronage Contract
 - 4) Mechanics of Conference Operation and Government Regulation

Week 10: Assignment - Kendall, Chapter IV

Topic

- 12. Chartering
 - a. Voyage, Time and Bare Boat Charters
 - b. Fixtures, Brokers, Exchanges
 - c. The Charter Market
 - d. Evaluation of the Charter Market

Miscellaneous topics to be covered as time permits:

- a. Ecology and the Merchant Marine
- b. Inland Waterways
- c. Coastwise, Intercoastal and Non-Contiguous Shipping
- d. Great Lakes Shipping

Appendix III A
 University of British Columbia, The Center for Transportation Studies.
Water Transportation (Professor H. G. Wilson)

Course Outline

Fall 1975

- A. Introduction
 - 1. The industry and its setting
Lawrence, chapters 1 & 2
- B. Economics of Sea Transport
 - 1. Shipping market structure
Lawrence, chapter 8
Rochdale report, pp. 116-136
 - 2. Supply of ships
Lawrence, chapter 7
 - 3. The cargo base
Lawrence, chapter 6
 - 4. Cargo trends
Lawrence, chapter 12
- C. Ports
 - 1. Supply of port services
Thorburn, pp. 127-139
 - 2. Port charges
Heggie, JTEP, January 1974
 - 3. Port investment planning
Goss, pp. 152-182
- D. Liner Rates and Competition
 - 1. The conference system
Sturmey, pp. 322-343
 - 2. Introduction to conference rates
Bennathan, chapter 4
 - 3. Rate discrimination and profitability
Heaver, ICTR, pp. 162-168
U.N., Freight Rates, chapter 10
 - 4. Pooling agreements
Seidenfus, ICTR, pp. 169-175
 - 5. Government policy
Bennathan, chapter 6
- E. Charter Rates
 - 1. Charter contracts
Rochdale report, pp. 143-152
 - 2. Relationship of voyage and time charter rates
U.N., Freight Rates, chapter 4
- F. National Shipping Policies
 - 1. Economics of government aid
Lawrence, chapter 10
 - 2. Government aids
Rochdale report, pp. 40-59
 - 3. Shipbuilding subsidies
Drewry's Economic Study, No. 13

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- G. The Future of Tanker Shipping
 - 1. The energy crisis and petroleum trade
Hill, pp. 13-25
 - 2. Tanker shipping and rates
Hill, pp. 107-127
 - 3. Questions for the future
Hill, pp. 199-221

- H. Marine Pollution
 - 1. Sources and economics of pollution
Heaver and Waters, CTRF, 1974

Sources of Readings

- Lawrence, S. A. International Sea Transport: The Years Ahead, Lexington Books, Lexington, Massachusetts, 1972.
- Goss, R. O. Studies in Maritime Economics, Cambridge University Press, Cambridge, 1968.
- Bennathan, Esra and Walters, A. A. The Economics of Ocean Freight Rates, Praeger, New York, 1969.
- Sturmev, S. G. British Shipping and World Competition, Athlone Press, London, 1962.
- Rochdale, et al. Committee of Inquiry into Shipping Report, Her Majesty's Stationery Office, London, May 1970.

Appendix III A
 University of Maryland. Water Transportation
 (Mr. Mattingly)

Syllabus

- Week 1: Subject
 Introduction
 Sea Power and National Power
 References
 Lawrence #1, Chapters 1 & 2
 Clark, et al., Part VI
 Reese & Fair, pp. 1-19
 McDowell & Gibbs, Chapter 1
- Week 2: Subject
 International Trade and Ocean Transportation
 Balance of Payments
 Flags of Convenience
 Foreign Discrimination
 References
 Lawrence #1, Chapters 3-5
 Lawrence, Chapters 4 & 5
 Clark et al., Part I
 Reese & Fair, pp. 72-85
- Week 3: Subject
 Laws and Agencies Governing Ocean Shipping
 MARAD
 FMC
 Congress Shipping Act 1916
 Act of 1970
 References
 Lawrence #1, Chapter 11
 Lawrence #2, Chapters 2 & 3, pp. 17-31
 Reese & Fair, pp. 185-191, Bross Appendix B, C, D, E
- Week 4: Subject
 Financing
 Trade in-Trade out program
 Construction Subsidy
 Section 511 Accounts
 Operating Subsidies
 References
 Lawrence #1, Chapters 6, 7, & 10
 Lawrence #2, Chapters 6-8
 Clark et al., Part III & IV
 Reese & Fair, pp. 47-71, 99-111
- Week 5: Subject
 Trade Routes
 Liner
 Tramp
 Private
 Charter

University of Maryland

References

Lawrence #1, Chapters 8 & 9
 Lawrence #2, pp. 1-16
 Clark et al., Part II
 McDowell & Gibbs, Chapter 4
 Bross, Chapter 2, 5 & 6

Week 6: Subject

Rates-Economics
 Conference v. Tramp
 Ship Operating Costs
 Surcharges
 Exclusive Patronage

References

Lawrence #1, Chapter 2
 Lawrence #2, Chapters 9-12
 O'Loughlin, Chapters 7, 11-13
 Reese & Fair, pp. 174-184

Week 7: Subject

Carrier Management
 Bulk Carriers (liquid and dry)
 Dry Cargo Carriers (containerization, LASH, roll-on-roll-off)
 Marine Losses and Marine Insurance

References

Lawrence #1, Chapters 13 & 14
 Clark et al., Part V
 O'Loughlin, Chapters 9 & 10

Week 8: Examination

Subject

Ship Operations
 Crew Make-up
 Labor Problems

References

Reese & Fair, pp. 95-98
 Elden, Chapters 1-6
 Bross, Chapter 7

Week 9: Subject

Terminal Operations
 Labor Problems
 Heavy Lift
 Unitization vs. Breakbulk
 Standardization of Materials Handling Equipment

References

Fair, Chapters 1, 2, 6-10, appendices, pp. 150-156
 O'Loughlin, Chapters 14-16
 Bross, Chapters 9 & 10
 Reese & Fair

Week 10: Subject

Inland Water Transportation in the U. S.
 History of Development

University of Maryland

References

Hull & Hull

Week 11: Subject

Role of Government

ICC

User Charges

Policy

Army Corps of Engineers

References

Hull & Hull

Week 12: Subject

Canal and River Operations

Channels

Barges by Type and Size

Locks and Dams

Pusher and Pull Vessels

References

Big Load Afloat

Week 13: Subject

Intra Coastal Operations

Types of Ships Involved

Great Lakes Operations - inland and ocean

Great Lakes Equipment

References

Big Load Afloat

Week 14: Examination

Subject

Inland Water Operations and its relationship to LASH and SEEBEE operations

References

Big Load Afloat, pp. 107-117

Week 15: Subject

Issues for Public Policy

References

Lawrence #1, Chapters 15-18

Week 16: Subject

Review of Course and Future Trends

References

All previous

Required Texts

- Big Load Afloat. The American Watering Operation, Inc., (to be provided).
Lawrence, Samuel A. International Sea Transport: The Years Ahead, Lexington
Books, 1972. Optional (Lawrence #1)
- Hull, William J. and Hull, Robert W. The Origin and Development of the
Waterways Policy of the United States, can be ordered from National
Conference, Inc.

University of Maryland

Other Texts

- Bross, Steward R. Ocean Shipping.
 Clark, Earl W., et al. The U. S. Merchant Marine Today.
 Elden, Rodney M. Ship Management.
 Fair, Marvin L. Port Administration in the U. S.
 Fair, Marvin L. and Howard C. Reese Editions, Merchant Marine Policy.
 Lawrence, Samuel. U. S. Merchant Shipping Policies and Politics (Lawrence #2)
 McDowell and Gibbs. Ocean Transportation.
 O'Loughlin, Parleen. The Economics of Sea Transport.

A term paper on a topic in Water Transportation is to be chosen by the student and approved by the instructor. Length 8-12 pages of text double-spaced typed plus bibliography, etc. Topics may be of the following types:

- Labor problems in manning ships (tankers, nuclear power, etc.)
- The case against user charges in inland water transportation
- The case for user charges in inland water transportation
- The case against cargo preference by a country
- The case for cargo preference by a country
- The case against construction (operating) subsidies, water transportation
- Labor problems in handling container Atlantic and Gulf coast
- Labor problems in handling container west coast
- The case for Dual Rates
- The case against Dual Rates
- The effects of the energy crisis on ocean shipping (tanker, etc.) etc.

Appendix III A
University of Rhode Island. Marine Transportation
(Dr. G. A. Motte)

Course Outline

- A. World Trade
 - 1. Principal trading routes
 - 2. Pattern of seaborne trade
 - 3. Coasting trade

- B. Shipping
 - 1. Flag distribution
 - 2. Flags of convenience
 - 3. Cargoes

- C. Ship Types
 - 1. General cargo
 - 2. Oil carriers
 - 3. Bulk carriers
 - 4. Container ship
 - 5. LASH
 - 6. Roll-on-roll-off
 - 7. Passenger
 - 8. Other special types

- D. Chartering
 - 1. Brokers and agents
 - 2. Types of charter
 - 3. Legal aspects
 - 4. Freight rates

- E. Bills of Lading
 - 1. Legal aspects
 - 2. Responsibilities and liabilities
 - 3. U. S. carriage of goods by sea acts
 - 4. Traditional clauses
 - 5. General and particular average

- F. Marine Insurance
 - 1. Hull and cargo
 - 2. Standard clauses
 - 3. Underwriting
 - 4. P & I

- G. Shipping Organizations
 - 1. International
 - 2. Governmental

- H. Ship Management
 - 1. Ship owner
 - 2. Fleet operation
 - 3. Conference lines
 - 4. The shipmaster

University of Rhode Island

I. The Merchant Marine

1. Worldwide
2. United States

J. Port Operation

1. Port control
2. Organization and planning
3. Functions
4. Management

Appendix III A
 University of Washington. Geography of Ocean Transportation
 (Dr. Douglas K. Fleming)

Course Outline

- I. General Procedure
 - A. Three lectures/discussions weekly
 - B. Midterm and final examinations (usually short essay questions)
 - C. Five-ten page research paper on approved topic for those expecting five credits; due one week before final examination

- II. Lecture Sequence
 - A. Perspectives of the trading system
 1. Historical background
 2. The middleman function
 - B. Tramp shipping
 1. Voyage costs
 2. The making of freight rates; the role of the chartering broker
 3. Overview of tramp routes and flows
 - C. Liner service
 1. The decline and fall of the passenger liner
 2. Berth service for freighters
 3. Institutional framework; shipping conferences; subsidies
 - D. Modern innovations
 1. The supercarrier
 2. Containerization
 - E. Port geography
 1. Harbors; port sites and facilities
 2. Port-oriented services
 3. Port-oriented industries
 4. Port hinterlands and forelands; port competition
 5. Port planning

- III. Required Texts
 - A. Bird: Seaports and Seaport Terminals, 1971
 - B. Couper: The Geography of Sea Transport, 1972.

- IV. Reading List
 - A. General reference
 1. Sargent: Seaways of the Empire, 1918 (revised 1930)
 2. Alexandersson: World Shipping, 1963
 3. Lawrence: International Sea Transport: The Years Ahead, 1972
 4. Locklin: Economics of Transportation, 7th Edition, 1972
 5. Beaver: "Ships and Shipping," Geography, April 1967
 6. Maritime Studies and Management (quarterly journal)
 - B. Cartographic and Statistical Reference
 1. Lloyds Maritime Atlas, 8th Edition, 1971
 2. Bureau of Census: U. S. Waterborne Foreign Trade
 3. U. S. Corps of Engineers: Waterborne Commerce of the U. S.
 4. Maritime Research Inc.: Chartering Annual, 1973.
 5. Fearnley & Egers: World Bulk Trades, 1972.
 6. Port of Seattle Annual Report 1972 (and hopefully, 1973)

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- C. The Trading System
 - 1. Fleming: "Spatial Interaction," Chapter 6 of Focus on Geography, 1970
 - 2. Thoman & Conkling: Geography of International Trade, 1967, Chapters 6 & 7
 - 3. "The Square Kilometer," survey by The Economist, August 8, 1970
- D. Tramp Shipping and Bulk Cargoes
 - 1. Sargent (IV A 1, above, especially Chapter 1)
 - 2. Fleming: "The Independent Transport Carrier in Ocean Tramp Trades," Economic Geography, January 1968
 - 3. Manners: The Changing World Market for Iron Ores 1950-1980, (Chapter 9) 1971
 - 4. Fearnley & Egers (IV B 5, above)
- E. Liner Service
 - 1. Brinnin: The Sway of the Grand Saloon, 1971
 - 2. Fleming: "Reflections on Conventional Cargo Liner Service," Maritime Studies & Management, Vol. 3, 1974
- F. Modern Innovations
 - 1. Stanley & Goicoechea: "New Dimensions in World Shipbuilding," Geoforum, 16/73, pp. 47-66
 - 2. Bruffey: The Impact of the Supercarrier on Ocean Cargo Flows, Routes and Port Activity, (Ph.D. dissertation), 1971
 - 3. "Japan Six," Sea-Land and other container line brochures
 - 4. Fearnley & Egers: World Bulk Fleet, January 1973
- G. Port Geography
 - 1. Albion: The Rise of New York Port, 1939
 - 2. Morgan: Ports and Harbours, 1952
 - 3. Weigend: "Some Elements in the Study of Port Geography," Geographical Reveiw, April 1958
 - 4. J. Kenyon, "Elements in Inter-port Competition in the United States," Economic Geography, January 1970
 - 5. McDonald: "Oil and the Environment: The View from Maine," Fortune, April 1971
 - 6. Hance and Van Dongen:
 - a. "Matadi," Annals AAG, March 1953
 - b. "Lobito," Geographical Review, October 1956
 - c. "Lourenco Marques," Economic Geography, July 1957
 - d. "Biera," Annals AAG, December 1957
 - 7. A Development Concept for the Duwamish Basin, Technical Assistance Project, E.D.A., U. S. Department of Commerce, February 1974
 - 8. Port of Seattle: Annual Reports
Economic Impact Study 1971
Reporter (monthly)
Facilities Handbook, 1972

Appendix III A
 University of Wisconsin-Milwaukee. Maritime Transportation
 (Dr. Harold Mayer)

Course Outline

- Week 1: Introduction: Principles of Spatial Interaction
 Maritime Transportation Geography as a Research Field
- Week 2: Historical Development of Maritime Transportation
 Ship Types
- Week 3: Ship Types
 Organization of Ocean Shipping.
 Liner Services
 Tramp and Industrial Services
- Week 4: Intermodality: Unitized Cargo Handling
 Port Development
- Week 5: Mid-term
 World Ocean Routes
- Week 6: World Ocean Routes
- Week 7: Inland Waterways: Mississippi River System
 Inland Waterways: Western Europe
 Inland Waterways: Great Lakes - St. Lawrence System
- Week 8: Inland Waterways: Great Lakes - St. Lawrence System
 Maritime Policy Problems of the United States
- Week 9: Maritime Policy Problems of the United States
 Review

APPENDIX III

B

ECONOMICS OF MARINE TRANSPORTATION

Rutgers University. Transportation Economics
(Dr. Robert G. Vambery)

Course Outline

Required Text: Pegrum, D. Transportation: Economics and Public Policy,
Homewood: Richard Irwin Inc., Revised edition.

References:

- Williams, E. W. The Future of American Transportation, Englewood Cliffs:
Prentice Hall Inc., 1971.
- Vambery, R. G. The Effects of Subsidies in the United States Shipbuilding
Industry, Journal of Transport Economics and Policy, May 1968.
- Friedlaender, A. The Dilemma of Freight Rate Regulation, Washington, The
Brookings Institution, 1969.
- Miller, R. and Sawers, D. The Technical Development of Modern Aviation,
New York, Praeger Publishers, 1970.
- Posher, R. Taxation by Regulation, The Bell Journal of Economics and
Management Science, Spring 1971.
- Heaver, T. "Theory of Shipping Conference Pricing and Policies," Maritime
Studies and Management, July 1973.
- 1967 and 1970 - Conference on Mass Transportation, "Urban Transportation"
and "National Transportation Policy," New York, Popular Library, 1967
and 1970.
- Wein H. and Sreedharan, V. The Optional Staging and Phasing of Multi-
Product Capacity, East Lansing, M.S.U., 1968.
- Bowersox, Smykay and LaLonde, Physical Distribution Management, New York,
The MacMillan Company, 1968.
- Fair and Plowmah, Coordinated Transportation, Cambridge, Cornell Maritime
Press Inc., 1969.

Topics:

- The Role of Transportation in the Economy, Chapter 1
- The Transportation System: Railroads, Motor Carriers, Waterborne Transport,
Air Transport, Pipelines, Chapter 2
- Common, Contract, and Private Carriers, Chapter 5
- Transport Pricing Theory, Chapter 7
- Freight Rate Structure, Chapter 8
- Rate-making, Chapter 10
- Transport Regulatory Agencies, Chapter 11
- Railroad, Chapter 13
- Motor Carriers, Chapter 14
- Air, Water, Pipeline Operations, Chapter 15
- Transport System Finance, Chapter 19
- Urban Transportation, Chapter 22
- The Organization of Physical Distribution, Bowersox 1 & 3
- Conclusion: Future Transport Systems, Chapter 24

Appendix III B
 United States Merchant Marine Academy. Transportation Economics
 (Commander Sigmund Kirschen)

Course Outline

Textbook: Domestic Transportation, 2nd edition, 1971, Roy Sampson and Martin Farris

Objectives:

- a. To understand the role of transportation in the U. S. economy and its interrelationships with other aspects of Physical Distribution.
- b. To understand the physical aspects of the various modes of transportation and the cost/service package offered by each.
- c. To become aware of the regulatory framework within which each mode of transportation must operate.
- d. To understand the concepts of economics that govern the allocation of transportation resources.
- e. By understanding the above, to grasp the concepts of National Transportation Policy.

Week 1: Assignment - Chapters 1-3

Topic

1. The role of domestic transportation in the United States
2. Physical distribution
 - a. The concept

Week 2: Assignment - Chapters 15, 25-28

Topic

2.
 - b. Inventory control
 - c. Warehousing
 - d. Plant/warehouse location

Week 3: Assignment - Chapters 4-6

Topic

2.
 - e. Purchasing
 - f. Packaging
 - g. Transportation

Week 4: Assignment - Chapters 7-9

Topic

3. Transportation - cost/service package of:
 - a. Railroads
 - b. Trucks
 - c. Pipelines
 - d. Airplanes
 - e. Water carrier

Week 5: Assignment - Same as fourth week

Topic - continued (same as fourth week)

U. S. Merchant Marine Academy

Week 6: Assignment - Chapters 10-14

Topic

4. Economics and transportation
 - a. Costs
 - b. Revenues
 - c. Rate-making

Week 7: Assignment - Chapters 16-19

Topic

5. The Regulation of Transportation
 - a. Railroads
 - b. Trucks
 - c. Pipelines
 - d. Water carriers
 - e. Airplanes

Week 8: Assignment - Same as seventh week

Topic - continued (same as seventh week)

Week 9: Assignment - Chapters 20-22

Topic

6. The promotion of transportation
7. Transportation labor
8. Unification, integration and diversification

Week 10: Assignment - Chapters 23, 24 and 29

Topic

9. Passenger transportation
10. National transportation policy

Appendix III B
 University of Michigan. Economics of Ship Design
 (Professor Harry Benford)

Course Outline

A. Topics

1. Elements of engineering economy
2. Measures of merit for ship design, taxes and bank loans
3. Practical application of economics to ship design
4. The engineer's public responsibilities
5. Capital budgeting
6. Inflation
7. Macro-studies, trade forecasts
8. Miscellaneous engineering economic matters: gradients, depreciation plans, non-annual compounding
9. Review of recent pertinent reports and papers

B. References

1. Booklets to Buy
 - a. Measures of Merit in Ship Design
 - b. Investment Returns Before and After Tax
 - c. Some Stochastic Aspects of Ship Design Economics
 - d. General Cargo Ship Economics and Design
 - e. Rational Selection of Ship Size
 - f. Standards for Engineering Economy Notation
 - g. Systems Analysis in Marine Transportation
 - h. Engineering Economy Applied to Ship Design
2. Important References
 - a. Relationships Between Profitability and Safety of Ships
 - b. Methods of Estimating Initial Investment Costs of Ships
 - c. Bierman & Smidt: The Capital Budgeting Decision, MacMillan
 - d. Grant & Ireson: Principles of Engineering Economy, Roland
 - e. Jelen: Cost and Optimization Engineering, McGraw-Hill
 - f. Goss: Maritime Economics, Cambridge
3. NA 400 Booklets
 - a. Practical Application of Economics to Merchant Ship Design
 - b. What an Engineer Should Know About Capital
 - c. Fundamentals of Ship Design Economics
4. Books Dealing with Public Responsibility
 - a. Future Shock, Toffler, Random House
 - b. Age of Discontinuity, Drucker, Harper & Row
 - c. First Half of the American Challenge, Servan-Schreiber, Atheneum

C. Assignments

Students are required to give at least two 20-minute oral reports to the class. These are based on independent study. One deals with engineers' public responsibility, the other with a pertinent technical topic of the student's choice

D. Course Objectives

1. Enable the student to solve problems requiring a knowledge of moderately advanced concepts in engineering economics. Examples include non-annual

University of Michigan

- compounding, irregular cash flows resulting from non-uniform tax burdens, bank loan complications, and gradient cash flows.
2. Enable the student to make practical application of the above concepts to decision making in ship design. This includes the rational selection of one or more suitable measures of merit.
 3. To give the student a qualitative understanding of the more important non-economic factors that should influence design decisions. This will involve reading, discussion and understanding conflicting points of view concerning the engineer's public responsibility.
 4. Give the student time to study one pertinent topic attaining good enough understanding to lecture on that topic before his classmates. Original thinking is encouraged in this.
 5. Give the student first-hand experience in self-education.
 6. Give the student experience and coaching in expository writing and public speaking.

APPENDIX III

C

SYSTEMS ANALYSIS OF MARINE TRANSPORTATION

Texas A&M University, Moody College of Marine Sciences and Maritime Resources
Introduction to Maritime Systems Engineering

Course Outline

There will be a number of topics covered in this course on a survey basis, with outside reading assigned as necessary. Emphasis will be on the interdisciplinary nature and systems engineering aspects of these topics:

- U. S. Ocean Technology & Maritime Programs
- Desalination
- Ocean Mining
- Fish Farming
- Power From the Sea
- Pollution
- Oil and Gas Drilling and Production Operations
- Pipelining
- Submersibles and Habitats
- Fixed and Floating Platforms
- Diving Operations
- Modern Shipping and Offshore Terminals
- High Speed Marine Transportation
- Oceanographic and Geophysical Exploration Systems

APPENDIX III

D

MANAGEMENT/DECISION-MAKING AND REGULATION
OF MARINE TRANSPORTATION SYSTEMS

Texas A&M University, Moody College of Marine Sciences and Maritime Resources
Port Operations, Administration, and Management

Course Outline

- Week 1: The Port Authority as a Government Entity
Readings:
 Enabling Act of the Virginia Port Authority
 The Port of New York and New Jersey Authority
 Excerpts of Remarks made by Mr. John P. Davis
- Week 2: Seaport Administration
 Profits
 Perpetuity
 Organization
 Administrative personnel
 Executive department
 Accounting department
 Physical plant
 Engineering department
 Operating efficiency
 Summary
Readings
 Excerpted from a speech by Harry C. Brockel
- Week 3: Port Revenues
 The tariff
 Rate analysis
 Summary
Readings:
 Tariff Rules & Regulations
 Container Handling Charges at Selected North Atlantic Ports
 An Example of Tariff Changes for a Small U. S. Port
- Week 4: Port Economics
 Historical development of port rates
 Cost accounting procedures
 Port finance - A composite picture of American ports
 Sources of capital funds
 Budgeting
 Measuring community benefits
 Total investment in the United States port industry
 Summary

Moody College

Readings:

Port Finance and Economics, Walter P. Hedden
 Port Rates and Cost Recovery, Eric Schenker

Week 5: Seaport Operations

Port operating arrangements
 Operations personnel
 Operating efficiency
 Waterfront labor
 Cargo handling operations
 Bulk operations
 Waterfront safety
 Port security
 Summary

Readings:

Excerpted from "Workshop on Port Security," William P. Sirignano

Week 6: Marketing and Promotion

Marketing operations
 Port promotion
 Promotional methods
 Personal selling
 Other promotional efforts
 Executive department
 Freight rates as marketing tools
 The industrial location effort
 Summary

Readings:

Freight Rates and Port Traffic Patterns

Week 7: Planning Functions and the Seaport

Planning: A definition
 The need for planning
 Planning: A time framework
 Planning functions and the seaport
 Planning and research department
 The port future
 Industry planning efforts
 Summary

Readings:

Excerpted remarks of Vice Chairman George H. Hearn
 Merchant Vessel Size in the United States Offshore Trades by
 the Year 2000

Week 8: The Seaport as a Physical Entity

Week 9: The Seaport as a Link in Intermodal Transportation Systems

The development of containerization
 Intermodal systems
 The container in port operations
 Types of container operations
 Container handling equipment

Moody College

Readings:

Development of Container Standards
Description of the Development of Port Elizabeth as a Major
Container Port, Nicholas M. Wright & Howard Smith

Week 10: Bargeship Intermodalism

Vessel characteristics, owners and trade routes
Barge characteristics
Advantages of the LASH system
Disadvantages of the LASH system
Effects of LASH on port operations
Attractiveness of the LASH service
Some side effects of the LASH operations
International regulations
Summary

Week 11: Deepwater Marine Terminals

Petroleum Industry Proposals
Port Authority Efforts
Federal Studies
Types of offshore deepwater terminals
Pile supported platforms
Comparison of offshore berthing facilities
Dry bulk offshore terminals
Movements of dry bulk commodities
Environmental protection
Summary

Readings:

Berthing, Mooring and Cargo Transfer
Operations for Deepwater Offshore Marine Terminals, John Mascenik
Progress in U. S. Deepwater Ports, Major General John W. Morris

Week 12: Harbor Traffic Control Systems

Introduction
Harbor radar
Technology of the future
Summary

Readings:

Features of Harbor Radar Systems Utilized in Principal World Ports
Excerpts from a Report of the Committee on Ship Channels and
Harbors, American Association of Port Authorities
Bridge to Bridge Radiotelephone Act of 1971
Excerpts from Public Law 92-340

Week 13: Challenges to Port Administration

Paradoxes Inherent in Port Administration
Conclusion

Appendix III D
 United States Merchant Marine Academy. Seaport Management

Course Outline

Textbook: Schwimmer, M. J. and Amundsen, P. Management of a Seaport,
 (National Maritime Research Center, 1973)

Week 1: Assignment - Schwimmer & Amundsen, Chapter I
 Topic

1. The Port Industry: An Overview
 - a. Types of ports
 - b. Port administrations
 - c. Historical development
 - d. Ports and their hinterlands

Week 2: Assignment - Schwimmer & Amundsen, Chapters II & III
 Topic

2. The Federal Responsibility in Ports and Harbors
 - a. Federal agencies involved in Port Activities
 - b. United States Army Corps of Engineers
 - c. Federal role in the construction of harbor projects
 - d. Initiating the construction of a federal port project
 - e. Cost-benefit evaluation of proposed port projects
3. The Port Authority as a Government Entity
 - a. Port authority types and trends
 - b. Typical port authority functions
 - c. The Port Commission or Board

Week 3: Assignment - Schwimmer & Amundsen, Chapter IV
 Topic

4. Seaport Administration
 - a. Profits
 - b. Perpetuity
 - c. Organization
 - d. Administrative personnel
 - e. Executive department
 - f. Accounting department
 - g. Physical plant
 - h. Engineering department
 - i. Operating efficiency

Week 4: Assignment - Schwimmer & Amundsen, Chapters V & VI
 Topic

5. Port Revenues
 - a. The tariff
 - b. Rate analysis
6. Port Economics
 - a. Historical development of port rates
 - b. Cost accounting procedures
 - c. Port finance - A composite picture of American ports
 - d. Sources of capital funds
 - e. Budgeting
 - f. Measuring community benefits
 - g. Total investment in the United States port industry

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Week 5: Assignment - Schwimmer & Amundsen, Chapters VII & VIII

Topic

7. Seaport Operations
 - a. Port operating arrangements
 - b. Operations personnel
 - c. Operating efficiency
 - d. Waterfront labor
 - e. Cargo handling operations
 - f. Bulk operations
 - g. Waterfront safety
 - h. Port security
8. Marketing and Promotion
 - a. Marketing operations
 - b. Port promotion
 - c. Promotional methods
 - d. Personal selling
 - e. Other promotional efforts
 - f. Executive department
 - g. Freight rates as marketing tools
 - h. The industrial location effort

Week 6: Mid-Quarter Examination

Assignment - Schwimmer & Amundsen, Chapter IX

Topic

9. Planning Functions and the Seaport
 - a. Planning: A definition
 - b. The need for planning
 - c. Planning: A time framework
 - d. Planning functions and the seaport
 - e. Planning and research department
 - f. The port future
 - g. Industry planning efforts

Week 7: Assignment - Schwimmer & Amundsen, Chapters X & XI

Topic

10. The Seaport as a Physical Entity
11. The Seaport as a Link in Intermodal Transportation Systems
 - a. The development of containerization
 - b. Intermodal systems
 - c. The container in port operations
 - d. Types of container operations
 - e. Container handling equipment

Week 8: Assignment - Schwimmer & Amundsen, Chapters XII & XIII

Topic

12. Bargeship Intermodalism
 - a. Vessel characteristics, owners and trade routes
 - b. Barge characteristics
 - c. Advantages of the LASH system
 - d. Disadvantages of the LASH system
 - e. Effects of LASH on port operations
 - f. Attractiveness of the LASH service
 - g. Some side effects of the LASH operations
 - h. International regulations
 - i. Summary

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13. Deepwater Marine Terminals

- a. Petroleum industry proposals
- b. Port authority efforts
- c. Federal studies
- d. Types of offshore deepwater terminals
- e. Pile supported platforms
- f. Comparison of offshore berthing facilities
- g. Dry bulk offshore terminals
- h. Movements of dry bulk commodities

Week 9: Assignment - Schwimmer & Amundsen, Chapter XIV

Topic

14. Harbor Traffic Control Systems

- a. Introduction
- b. Harbor radar
- c. Technology of the future

Week 10: Assignemnt - Schwimmer & Amundsen, Chapter XV

Topic

15. Challenges to Port Administration

- a. Paradoxes inherent in port administration
- b. Conclusion

Appendix III D
 University of Michigan. Maritime Management
 (Professor Harry Benford)

Course Outline

A. Topics	Class Hours
1. Review engineering economics	2
2. Engineers' public responsibility	2
3. Ocean freight rates, the conference system	4
4. Chartering arrangements	2
5. Federal policies: subsidies, sabotage, other supports and constraints	2
6. Labor-management problems	2
7. Stocks, bonds, stock market	1
8. Capital budgeting	1
9. Optimal life and replacement analysis	2
10. Admiralty law	1
11. Review of recent pertinent publications	20
B. References	
1. Odiorne: <u>Management by Objectives</u>	
2. Moder & Phillips: <u>Project Management with CPM and Pert</u>	
3. Duckworth: <u>Operational Research</u>	
4. Filley & House: <u>Managerial Objectives and Organization Behavior</u>	
5. Morris: <u>The Analysis of Management Decisions</u>	
6. Bross: <u>Ocean Shipping</u>	
7. Hay: <u>Transportation Engineering</u>	
8. Lansing: <u>Transportation and Economic Policy</u>	
9. Grossman: <u>Ocean Freight Rates</u>	
10. Goss: <u>Maritime Economics</u>	
11. McDowell & Givvs: <u>Ocean Transportation</u>	
12. Lawrence: <u>International Sea Transport</u> <u>U. S. Merchant Shipping Policies and Politics</u>	
13. Ferguson, et al.: <u>The Economic Value of the U. S. Merchant Marine</u>	
C. Assignments	
Students are required to give at least two 20-minute oral reports to the class. These are based on independent study.	

APPENDIX III

E

INTERNATIONAL AND REGIONAL SHIPPING SYSTEMS
AND OCEAN POLICY ANALYSIS

Johns Hopkins University, School of Advanced International Studies
Ocean Policy Seminar (Dr. Robert Friedheim)

Reading List

Fall 1975

- Week 1: Ocean Science, Resources and Geography
- *Scientific American 221:3 (September 1969), Special issue on the Ocean.
 - *Paul M. Fye, Arthur E. Maxwell, Kenneth O. Emery and Bostwick H. Ketchum, "Ocean Science and Marine Resources," Uses of the Seas, ed. by Edmund A. Gullion. Englewood Cliffs, N.J.: Prentice-Hall, 1968, pp. 17-68.
 - *Lewis M. Alexander, "Indices of National Interest in the Oceans," Ocean Development and International Law Journal, 1:1 (Spring 1973), pp. 21-49.
 - U.S. Senate, Committee on Commerce, The Economic Value of Ocean Resources to the United States, 93rd Cong., 2nd Sess., December 1974.
 - John K. Gamble, Jr., Global Marine Attributes. Cambridge: Ballinger, 1974.
 - Theoretical Areal Allocations of Seabed to Coastal States Based on Certain UN Seabeds Committee Proposals. International Boundary Study, Series A, Limits in the Seas, No. 46. The Geographer, Bureau of Intelligence and Research, Department of State, August 1972.
- Week 2: Conceptual Framework: Theories About the Ocean and Its Use
- *R. L. Friedheim, "Understanding the Debate on Ocean Resources," Monograph Series in World Affairs, Volume 6: Monograph No. 3, Denver: University of Denver, 1968-69.
 - *Davis B. Bobrow, "International Politics and High-Level Decision-Making: Context for Ocean Policy," unpublished paper.
 - *Garrett Hardin, "The Tragedy of the Commons," Science 162, (13 December 1968), pp. 2343-1248.
 - *Kenneth W. Clarkson, "International Law, U.S. Seabeds Policy and Ocean Resource Development," Journal of Law and Economics, XVII:1 (April 1974), pp. 118-126.
 - Beryl L. Crowe, "The Tragedy of the Commons Revisited," Science 166:3909 (28 November 1969), pp. 1103-1107.
 - Oran R. Young, "The United Nations and the International System," International Organization, XXII:4 (Autumn 1968), pp. 902-922.

*Required Reading. (Others recommended.)

- Hugo Grotius, The Freedom of the Seas, ed. by James Scott Brown. Oxford: Oxford University Press, 1916.
- George Kent, "Political Design," Dimensionality of Nations Project, Research Report No. 63, July 1972.

Week 3: The Law of the Sea

- *H. Gary Knight, The Law of the Sea: Cases, Documents, and Readings, Washington: Nautilus Press, 1975.
Selected portions from chapters on The Territorial Sea, the High Seas, and the Continental Shelf.
- *J. Lawrence Hargrove, "New Concepts in the Law of the Sea," Ocean Development and International Law Journal, I, (Spring 1973), pp. 5-12.
- *R. L. Friedheim, "Factor Analysis as a Tool in Studying the Law of the Sea," The Law of the Sea: Offshore Boundaries and Zones, Lewis Alexander, ed. Columbus: Ohio State University Press, 1967.
- Myres S. McDougal and William T. Burke, The Public Order of the Oceans. New Haven: Yale University Press, 1962. (Peruse)
- D. P. O'Connell, "Maritime Territory," Chapter 16 in International Law, London: Stevens and Sons, Ltd., 1965.
- D. W. Bowett, The Law of the Sea, Manchester: Manchester University Press, 1967.

Week 4: Factors in Policy Formation I: Military, Shipping and Fisheries Interests

Military --

- *Robert E. Osgood, "U.S. Security Interests and Ocean Law," Ocean Development and International Law, II (Spring 1974) pp. 1-36.
- *Laurence W. Martin, "The Role of Force in the Ocean," Perspectives on Ocean Policy, Conference on Conflict and Order in Ocean Relations, Johns Hopkins Ocean Policy Project. Washington: USGPO, 1974, pp. 33-44.
- *John A. Knauss, "The Military Role in the Ocean and its Relation to the Law of the Sea," The Law of the Sea: A New Geneva Conference, ed. by L. M. Alexander. Kingston: University of Rhode Island, 1971, pp. 77-86.
- Robert A. Frosch, "Military Uses of the Ocean," Second Conference on Law, Organization and Security in the Use of the Ocean. Columbus, Ohio: Mershon Center and Carnegie Endowment, pp. 154-74.
- Sven Hirdman, "The Militarization of the Deep Ocean," SIPRI Yearbook of World Armaments and Disarmament, 1969/70. New York: Humanities Press, 1970, pp. 92-154.
- Young, Elizabeth, "New Laws for Old Navies: Military Implications of the Law of the Sea," Survival XVI:6 (Nov.-Dec. 1974).
- U.S. Senate. Committee on Armed Services. Extending Jurisdiction of the United States Over Certain Areas. 93rd Cong., 2nd Sess., October 1974, pp. 35-71.

Shipping --

- *E. D. Brown and A. D. Couper, "Future Shipping and Transport Technology and its Impact on the Law of the Sea," Law of the Sea: Caracas and Beyond, ed. by Christy, Clingan, Gamble, Knight and Miles. Cambridge, Mass.: Ballinger, 1975, pp. 271-296.

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*Charles C. Bates and Paul Yost, "Where Trends the Flow of Merchant Ships?" Law of the Sea: The Emerging Regime of the Oceans, ed. by Gamble, Pontecorvo. Cambridge: Ballinger, 1973, pp. 249-275.

L. M. S. Rajwar, M. G. Valente, J. S. Oyevaar, W. R. Malinowski, "Shipping and Developing Countries," International Conciliation, No. 582, March 1971.

Fisheries --

*Francis T. Christy, Jr., "Fisheries: Common Property, Open Access and the Common Heritage," Resources for the Future, Reprint 101, July 1972.

*James A. Crutchfield, "Overcapitalization of the Fishing Effort," The Law of the Sea: The Future of the Sea's Resources. Kingston, R.I.: University of Rhode Island, 1967, pp. 23-28.

*Wilbert M. Chapman, "The Theory and Practice of International Fishery Development--Management" San Diego Law Review 7:3 (1970), pp. 408-454.

U.S. Senate. Committee on Armed Services. Extending Jurisdiction of the United States Over Certain Areas, 93rd Cong., 2nd Sess., October 1974, pp. 94-101, 139-167, 204-224, 267-69.

James A. Crutchfield, "National Quotas for the North Atlantic Fisheries: An Exercise in Second Best," The Law of the Sea: International Rules and Organization for the Sea. Kingston: University of Rhode Island, 1968, pp. 263-83.

Francis T. Christy, Jr., "Fisherman Quotas: A Tentative Suggestion for Domestic Management," Occasional Paper No. 19, Law of the Sea Institute, University of Rhode Island, November 1973.

Francis T. Christy, Jr., and Anthony Scott, The Common Wealth in Ocean Fisheries. Baltimore: Johns Hopkins Press, 1965. See especially Chapters 2, 9, 10, 12.

Jon L. Jacobson, "Future Fishing Technology and Its Impact on the Law of the Sea," Law of the Sea: Caracas and Beyond, ed. by Christy, Clingan, Gamble, Knight and Miles. Cambridge: Ballinger, 1975, pp. 237-250.

John H. Ryther, "Photosynthesis and Fish Production in the Sea," Science 166:3901 (October 3, 1939), pp. 72-76; and D. L. Alverson, A. R. Longhurst, J. A. Gulland and John Ryther, Science 168:3930 (April 24, 1970), pp. 503-505.

Week 5: Factors in Policy Formation II: Science, Environment, Energy and Mineral Resource Interests

Science --

*John Knauss, "Developing the Freedom of Scientific Research Issue of the Law of the Sea Conference," Ocean Development and International Law Journal 1:1 (Spring 1973), pp. 93-120.

*Jorge A. Vargas, "Normative Aspects of Scientific Research in the Oceans, The Case of Mexico," Occasional Paper No. 23, Law of the Sea Institute, University of Rhode Island, October 1974.

William T. Burke, "Scientific Research Articles on the Law of the Sea Informal Single Negotiating Text," Occasional Paper #25, Law of the Sea Institute, University of Rhode Island, June 1975.

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Environment --

- *Who Protects the Oceans? A Symposium. St. Paul, Minn.: West, 1975.
Edward D. Goldberg and David Menzel, "Ocean Pollution,"
pp. 37-62.
R. L. Friedheim, "Ocean Ecology and the World Political
System, pp. 151-90.
- *Charles S. Pearson, "Environmental Policy and the Ocean," Perspectives on Ocean Policy, Conference on Conflict and Order
in Washington: USGPO, 1974, pp. 207-219.
United Nations, Economic and Social Council, 51st Session, The
Sea: Prevention and Control of Marine Pollution, 7 May 1971
(E/5003).

Energy --

- *National Petroleum Council, Petroleum Resources Under the Ocean
Floor, March 1969, pp. 1-25, 55-67.
- * _____, Petroleum Resources Under the Ocean Floor,
Supplemental Report, March 1971, Chapter 1.
- * _____, U.S. Energy Outlook, Summary Report, December 1972,
pp. 75-80.

Minerals --

- *John E. Flipse, "Deep Ocean Mining Technology and its Impact on
The Law of the Sea," Law of the Sea: Caracas and Beyond, ed.
Mass.: Ballinger, 1975, pp. 325-32.
- *David B. Brooks, "Deep Sea Manganese Nodules: from Scientific
Phenomenon to World Resource," The Law of the Sea: The Future
of the Sea's Resources. Kingston, R.I.: University of Rhode
Island, 1967, pp. 32-41.
- *Herbert D. Drechsler, "The Value of Subsea Mineral Resources,"
The Law of the Sea: A New Geneva Conference, ed. by L. M.
Alexander. Kingston: University of Rhode Island, 1971,
pp. 112-14.
- John L. Mero, "A Legal Regime for Deep Sea Mining," San Diego
Law Review 7:3 (1970), pp. 488-503.
- H. Gary Knight, "The Deep Seabed Hard Mineral Resource Act--A
Negative View," San Diego Law Review 10:3 (1973), pp. 446-66.
- John G. Laylin, "The Law to Govern Deepsea Mining until Superseded
by International Agreement," San Diego Law Review 10:3 (1973),
pp. 433-45.
- UNGA. Committee on the Peaceful Uses of the Seabed and the Ocean
Floor Beyond the Limits of National Jurisdiction, Economic
Significance in Terms of Sea-Bed Mineral Resources, of the
Various Limits Proposed for National Jurisdiction, 4 June 1973
(A/AC.138/87.)
- United Nations. Third Conference on the Law of the Sea. First
Committee. Note by the Chairman, 26 July 1974 (A/CONF.62/C.1/L.2).

Week 6: Bureaucratic Politics and Ocean Policy

- *Ann L. Hollick, "United States and Canadian Policy Processes in
Law of the Sea," San Diego Law Review 12:3 (1975), pp. 518-552.
- *Ann L. Hollick, "United States Oceans Politics," San Diego Law
Review, 10:3 (1973), pp. 467-501.
- *Ann L. Hollick, "Bureaucrats" at Sea," The New Era of Ocean Politics,
Baltimore: Johns Hopkins Press, 1974.

- H. Gary Knight, "Special Domestic Interests and United States Oceans Policy," International Relations and the Future of Ocean Space ed. by R. G. Wirsing, Columbia: University of South Carolina Press, 1974, pp. 10-43.
- N. G. Onuf and Robert O. Slater, "Law - Experts and the Making of Formal Ocean Policies," paper prepared for delivery at APSA Annual Meeting, 1974.

Week 7: International Organizations and the Uses of the Ocean

- *R. L. Friedheim, "International Organizations and the Uses of the Ocean," in Multinational Cooperation: Economic, Social and Scientific Development, ed. Robert Jordan. New York: Oxford University Press, 1972. (available as Center for Naval Analyses Professional Paper 49, October 1970.)
- *Robert O. Keohane and Joseph S. Nye, "Transgovernmental Relations and International Organizations," World Politics XXVII:1 (October 1974), pp. 39-62.
- *John Gerard Ruggie, "Collective Goods and Future International Collaboration," American Political Science Review LXVI:3 (September 1972), pp. 874-93.
- William T. Burke, "Aspects of Internal Decision-Making Processes in Intergovernmental Fishery Commission," Washington Law Review 43:1 (1967), pp. 115-178.
- F. E. Popper, "The Role of FAO and of the Regional Organizations after the Conclusion of the Third United Nations Conference on the Law of the Sea," Law of the Sea: Caracas and Beyond, ed. by Christy, Clingan, Gamble, Knight and Miles, Cambridge, Mass: Ballinger, 1975, pp. 207-221.
- United Nations: Third Conference on the Law of the Sea. The Activities of the Inter-Governmental Maritime Consultative Organization in Relation to Shipping and Related Maritime Matters, 3 June 1974 (A/CONF.62/27).

Week 8: The North-South Split and the Ocean

- *R. L. Friedheim, "The Satisfied and Dissatisfied States Negotiate International Law: A Case Study," World Politics, October 1965.
- *R. L. Friedheim, "A Law of the Sea Conference--Who Needs It?" International Relations and the Future of Ocean Space, University of South Carolina, Institute of International Studies, Fall 1973.
- *Lucian W. Pyc, "Law as the Source of Both Instability and Rigidity," Aspects of Political Development, Boston: Little, Brown, 1966, pp. 113-25.
- *Roger D. Hansen, "The North South Split and the Law of the Sea Debate," Perspectives on Ocean Policy, Conference on Conflict and Order in Ocean Relations, Johns Hopkins Ocean Policy Project. Washington: USGPO, 1974. pp. 109-33.
- Surendra J. Patel, "Technological Dependence of Developing Countries: A Survey of Issues and Lines of Action," Law of the Sea: The Emerging Regime of the Oceans. ed. by Gamble and Pontecorvo. Cambridge, Mass: Ballinger, 1973, pp. 55-76.

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Giulio Pontecorvo, "Ocean Science and Mutual Assistance: an Uneasy Alliance," Ocean Development and International Law Journal 1:1 (Spring 1973), pp. 51-64.

Week 9: Other Regions, Other Ocean Needs

- *U.S. Senate. Committee on Commerce and the National Ocean Policy Study, Soviet Ocean Activities: A Preliminary Survey, 94th Cong., 1st Sess., April 1975.
- *R. L. Friedheim, "The Soviet Position at the Third U.N. Law of the Sea Conference," (with Mary E. Jehn) in Soviet Naval Policy: Objectives and Constraints, ed. by Michael McGwire, Ken Booth and John McDonnell, New York: Praeger, 1975.
- *Perspectives on Ocean Policy, Conference on Conflict and Order in Ocean Relations, Johns Hopkins Ocean Policy Project. Washington: USGPO, 1974
 - Sections on: Europe (Hardy) pp. 61-74
 - Latin America (Orrego Vicuna) pp. 75-86
 - Africa (Njenga) pp. 87-105
- *Martin Ira Glassner, "Developing Land-Locked States and the Resources of the Seabed," San Diego Law Review 11:3 (1974) pp. 633-655.
- *J. J. G. Syatauw, "Revisiting 'the Archipelago'--An Old Concept Gains New Respectability," India Quarterly XXIX:2 (April-June 1973) pp. 104-19.
- *Robert D. Hodgson and Lewis M. Alexander, "Towards an Objective Analysis of Special Circumstances," Occasional Paper No. 13, Law of the Sea Institute, University of Rhode Island, April 1972.
- *Alvaro de Soto, "The Latin American View of the Law of the Sea," India Quarterly XXIX:2 (April-June 1973), pp. 126-37.
- Menno T. Kamminga, "Building 'Railroads on the Sea': China's Attitude towards Maritime Law," China Quarterly 59 (July-September 1974), pp. 544-558.

Week 10: Quantitative Analysis of Ocean Politics: Bargaining Theory and Bargaining Practice

- *R. L. Friedheim and Joseph B. Kadane, "Ocean Science in the U.N. Political Arena," Journal of Maritime Law and Commerce, 3:3 (April 1972).
- *R. L. Friedheim and J. B. Kadane, "Quantitative Analysis of the United Nations Seabed Debates: Methodology and a Continental Shelf Case Study," International Organization, Summer 1970. (Center for Naval Analyses Professional Paper 28.)
- *Thomas Hovet, Jr. "United Nations Diplomacy," Journal of International Affairs XVII:1 (1963) pp. 29-41.
- *David A. Kay, "Intergovernmental Dimensions of International Conferences," Law of the Sea: Caracas and Beyond, ed. by Christy, Clingan, Gamble, Knight and Miles. Cambridge, Mass: Ballinger, 1975, pp. 95-102.
- *F. C. Ikle and N. Leites, "Negotiation: A Device for Modifying Utilities," in Game Theory and Related Approaches to Social Behavior, ed. by M. Shukik, N.Y.: Wiley, 1964, pp. 243-58.
- *Abram De Swaan, Coalition Theories and Cabinet Formation, San Francisco: Jossey-Bass, 1973. Preface and Part I.

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- *Louis B. Sohn, "Introduction: United Nations Decision-Making: Confrontation or Consensus?" Harvard International Law Journal 15:3 (Summer 1974), pp. 438-45.
- *Robert D. Tollison and Thomas D. Willett, "Institutional Mechanisms for Dealing with International Externalities: A Public Choice Perspective on the Law of the Sea," Paper prepared for delivery at American Enterprise Institute Conference, February 1975, pp. 38-45.
- William H. Riker, The Theory of Political Coalitions, New Haven: Yale University Press, 1962. Chapters 1, 2, 5, 6.
- Ole R. Holsti, Content Analysis for the Social Sciences and Humanities, Reading, Mass.: Addison-Wesley, 1969.
- Thomas Hovet, Jr. "Political Parties in the United Nations?" paper prepared for delivery at APSA Meeting, 1962.
- Haywood Alker, Jr. and Bruce Ressett, World Politics in the General Assembly, New Haven: Yale University Press 1965.
- Richard G. Niemi and Herbert F. Weissberg (eds.) Probability Models of Collective Decision Making, Columbus, Ohio: Merrill, 1972.
- Peter R. Baehr, "The Role of a National Delegation in the General Assembly," Occasional Paper No. 9, Carnegie Endowment for International Peace, December 1970.
- Jack Sawyer and Harold Guetzkow, "Bargaining and Negotiating in International Relations," International Behavior, ed. by Herbert C. Kelman, N.Y.: Holt, Rinehart and Winston, 1965, pp. 464-520.

Week 11: LOS III: Caracas, Geneva and Beyond

- *Edward Miles, "An Interpretation of the Caracas Proceedings," Law of the Sea: Caracas and Beyond, ed. by Christy, Clingan, Gamble, Knight and Miles, Cambridge: Ballinger, 1975, pp. 39-94.
- *Toward a National Ocean Policy: 1975 and Beyond, Report of the Johns Hopkins Ocean Policy Project to the National Science Foundation (forthcoming).
- *"Pinto text" and "Informal Single Negotiating Text," U.S. Senate Committee on Interior and Insular Affairs. Status Report on Law of the Sea Conference, Part 3, 94th Cong., 1st Sess., June 1975, pp. 1249-1396.
- *H. Gary Knight, "Alternatives to a Law of the Sea Treaty," paper prepared for delivery at a Conference on Law of the Sea, American Enterprise Institute and Department of the Treasury, February 1975.

Week 12: The Future of Ocean Policy Research

- *R. L. Friedheim and Judith T. Kildow, Report of the Ocean Policy Research Workshop, Occasional Paper No. 25, Law of the Sea Institute, University of Rhode Island, 1975. (Also available as Report PRI 196-1975, Public Research Institute, Center for Naval Analyses).
- *Ann L. Hollick, "National Ocean Institutions: Research Needs," Ocean Development and International Law (forthcoming).

Johns Hopkins University

- *John Lawrence Hargrove, "Ocean Law Research Needs," (unpublished paper).
- *Gerald L. Wick, "Ocean Science Policy Research Needs," (unpublished paper).
- *National Research Council, A Preliminary Report on International Fisheries Management Research, May 1971.

Appendix III E
 University of Oregon. International Transportation and Distribution Management
 (Dr. Roy J. Sampson)

Course Outline

Text: O'Loughlin, The Economics of Sea Transport. Transport and Logistics Research Center, Transportation Facilitation Education Program, Part Three - hereinafter referred to as Handbook (five copies on two-hour reserve for this class).

- Week 1: Introduction, nature of course, etc.
 Historical development and present importance of international transport and distribution
 Text, Chapter 1
- Week 2: Contemporary international distribution theory and procedures: political and economic limitation on comparative advantage: methods of international sales and payments
 Text, Chapters 2-5
 Handbook, pp. 71-81; also Appendix A, pp. 292-322
- Week 3: Contemporary international ocean and air carriers: physical, organizational, and economic characteristic and performances
 Text, Chapters 6-10
- Week 4: International distribution routes and commodity flows
 No "required" outside reading
- Week 5: International maritime and aviation law: general peacetime and wartime rules and rights
 No "required" outside reading
- Week 6: National regulation of international transport: labor relations, safety, and carrier liability
 Handbook, pp. 239-241
- Week 7: National promotion of international transport
 Text, pp. 149-159
- Week 8: First mid-term examination; one hour; mixed short answers, essays and cases
- Week 9: Discussion of mid-term examination
 International freight rates and rate-making procedures
 Text, Chapters 11 & 12 and pp. 159-164
 Handbook, pp. 232-237
- Week 10: Documentation problems and procedures in international transport
 Handbook, pp. 116-141

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- Week 11: Shipper and carrier international maritime and aviation insurance
Handbook, pp. 94-115
- Week 12: Terminal and hinterland facilities, services, charges and supporting
agencies
Text, Chapters 14-16
Handbook, pp. 242-270
- Week 13: Second mid-term examination; one hour; mixed short answers, essays
and cases
- Week 14: Discussion of mid-term examination
Recent trends and prospective developments in international transport
and distribution
Handbook, pp. 193-216
- Week 15: Summary, review, and preview of final examination

Appendix III E

University of Wisconsin - Green Bay. Transport Systems in Selected World Regions

Course Outline

- I. Introduction
 - A. Purpose and scope of course
 - B. Regional implications of transportation
 - C. The importance of transportation in the United States
 - D. An overview of world transport systems
- II. Transport Centers
 - A. Determinants of location
 - B. Transportation functions of centers
 - C. Circulation within centers
 - D. Some case studies
- III. Regional Character and Change
 - A. Transport centers in their regional setting
 - B. Regional specialization
 - C. Comparative advantage
 - D. Transport costs and the location of economic activity
 - E. Transport rates
- IV. Transport Systems in the United States
 - A. Regional network development and impact
 - B. The role of the government
 - C. Modal characteristics
 - D. Present network patterns
 - E. Commodity flow
 - F. Future concerns
- V. Transportation Development in a Planned Economy - the U.S.S.R.
 - A. The problem of space
 - B. Commodity flow
 - C. The role of the railroads
 - D. Transportation and regional change
- VI. Transportation in a Multi-Nation Region - Western Europe
 - A. Barriers and cooperation
 - B. The effects of distance
 - C. Present network patterns
 - D. The ports as transport nodes
- VII. Transportation, Development, and the Third World in Asia, Africa, and Latin America
 - A. Subsistence vs. commercialism
 - B. The basis of transport development
 - C. Relationship to the developed world
 - D. The character of some networks

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VIII. External Transportation Linkages (international trade)

- A. Major routes
- B. Changing flow patterns
- C. The effects of new technology
- D. Foreign trade and the United States

IX. Summary and Conclusions

- A. Variations in the transport component
- B. The need for transport planning within and between nations

Readings

- Part III Regional Character & Change: D. Philip Locklin, Economics of Transportation, (6th or 7th ed.) Chapters 1 and 4
- Part IV Transport Systems in the United States: J. Edwin Becht, A Geography of Transportation and Business Logistics, Entire book
- Part V The U.S.S.R.: Paul Lydolph, A Geography of the U.S.S.R., 1970, pp. 551-565
- Part VI Western Europe: Jean Gottman, A Geography of Europe, pp. 46-58, and pp. 76 & 77
- Part VII The Third World:
1. B. S. Hoyle, Transport and Development, Readings to be assigned
 2. Wilfred Owen, Distance and Development, pp. 1-74
 3. T. R. Tregar, An Economic Geography of China, pp. 155-177
- Part VIII International Trade: S. A. Lawrence, International Sea Transport: The Years Ahead, Chapters 1, 6, & 8

APPENDIX III

F

TECHNICAL ASPECTS OF MERCHANT SHIP OPERATION

Texas A&M University, Moody College of Marine Sciences and Maritime Resources
Cargo I

Course Outline

The following books are required:

Marine Cargo Operations, Captain Charles Sauerbier

Merchant Officer's Handbook

Merchant Seaman's Manual

*Cargo Questions & Answers (School handout)

*U.S.C.G. 101

*Gear Certification Regulations, U.S. Dept. of Labor

*provided by the College

- Week 1: 1. Course introduction and organization
2. Shipowners organization - SB 1-12
3. Shipowners organization - SB 12-21
4. Lab
- Week 2: 1. Cargo responsibility - SB 22-41
2. Cargo responsibility - SB 22-41
3. Protecting the cargo - SB 102-116
4. Lab
- Week 3: 1. Protecting the cargo - SB 116-136
2. Planning the stowage - SB 136-158
3. Guest lecturer
4. Lab
- Week 4: 1. Planning the stowage - SB 137-158
2. Loading and discharging equipment - SB 241-260
3. Loading and discharging equipment - SB 241-260
4. Lab - Exam #1
- Week 5: 1. Loading and discharging equipment - SB 260-277
2. Loading and discharging equipment - SB 277-296
3. Guest lecturer
4. Lab
- Week 6: 1. Loading and discharging equipment - SB 296-310
2. Gear certification, deck seamanship - A.M.S.M. 79-96
3. Guest lecturer
4. Lab

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- Week 7: 1. Port operations/organization
2. Deck safety - duties of a junior officer
3. Guest lecturer (Safety Division S.S. Company)
4. Lab
- Week 8: 1. Container ships operation
2. Loading/discharging/securing and inspection of container
3. Guest lecturer (container operations)
4. Lab - Exam #2
- Week 9: 1. LASH/SEABEE operations
2. Barge operations
3. Guest lecturer (Lykes or Waterman--barge operations)
- Week 10: 1. Marine insurance - deck officer's role
2. Lab
- Week 11: 1. Grain regulations
2. Grain regulations
3. Guest lecturer
4. Lab - Exam #3
- Week 12: 1. Ammunition cargoes
2. Ammunition cargoes
3. Bulk sulphur operations
4. Lab
- Week 13: 1. Winches, cranes, hooks, slings - A.M.S.M.
2. Common cargoes - assigned readings (124-130)
3. Common cargoes
4. Lab
- Week 14: 1. Common cargoes/record books
2. Duties of the junior deck officer
3. Guest lecturer
4. Lab
- Week 15: Review for final exam

Appendix III F

Texas A&M University, Moody College of Marine Sciences and Maritime Resources
Cargo II

Course Outline

Marine Tanker Operations & Petroleum Handling

Texts:

- (TP) Tanker Practice by G.A.B. King
- (CG-174) A Manual for the Safe Handling of Inflammable and Combustible Liquids
- (CG-329) Fire Fighting Manual for Tank Vessels
- (CG-123) Rules & Regulations for Tank Vessels

It would be good to have the following texts:

- (TMH) Tankerman's Handbook by Wooler
- (THDO) Tanker Handbook for Deck Officers by Baptist

- Week 1: Introduction - the petroleum industry and petroleum projects cargo characteristics - API gravity, flash point, etc.
 - (TP) Chapter 13, pp. 132-140
 - (CG-329) Chapter 2, p. 4
 - (CG-174) Chapter 2, pp. 3-5
- Week 2: The tanker: construction, arrangement and nomenclature
 - (TP) Chapters 1 & 2, pp. 9-29
 - (CG-174) Chapters 11 & 12, pp. 42-48
- Week 3: Piping systems and valves
Exam #1
- Week 4: Oil measurement and loading problem
 - (TP) Chapters 3 & 4, pp. 30-51
- Week 5: Tanker loading operations
 - (TP) Chapters 5 & 6, pp. 52-73
 - (CG-174) Chapter 5, pp. 12-20
- Week 6: The pump room and cargo pumps: arrangement, nomenclature and operation
 - (TP) Chapter 7, pp. 74-77
- Week 7:
 - (TP) Chapter 7, pp. 77-84
 - (CG-174) Chapter 7, pp. 27-28
 Exam #2
- Week 8: Ballasting and tank cleaning and gas freeing (combustible gas indicator)
 - (TP) Chapters 8 & 9, pp. 85-103
 - (CG-174) Chapter 8, pp. 29-30 and Chapter 13, pp. 55-56

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- Week 9: Oil Pollution: prevention, containment and clean up
oil record book
(TP) Chapter 10, pp. 104-111
(CG-174) Chapter 9, pp. 31-37
- Week 10: General tanker safety and fire fighting
(TP) Chapter 11, pp. 112-121
(CG-329) Chapters 3-5, pp. 5-40
(CG-174) Chapter 4, pp. 7-11
Exam #3
- Week 11: Special cargo: elevated temperature cargoes and chemical cargoes,
tank coatings use of CG-388 chemical data guide, measurement of
toxicity
- Week 12: Special cargo: (continued) chemical cargo and health hazards
- Week 13: LNG-LPG and other cryogenics
(CG-174) Chapter 6, pp. 21-25
- Week 14: Tanker mooring characteristics and terminals, mono-buoys, loading/
discharging offshore, special mooring problems
Exam #4
- Week 15: Review

Appendix III F
 United States Merchant Marine Academy. Cargo I

Course Outline

Textbook: Sauerbier, Charles L., Marine Cargo Operations, (John Wiley & Sons, 1956)

- Week 1: Assignment - pp. 355-425
 Supplement - Immer, John R., Materials Handling, pp. 23-31
 Topic 1. Materials Handling Principles
 A. Maritime Applications
 Topic 2. Materials Handling Equipment
 A. Development and Utilization
- Week 2: Assignment - pp. 37-41; 86-94; 105-112; 130-136
 Topic 3. Principles of Stowage
 A. Overview for all Types of Vessels
 Assignment - pp. 137-149; 159-175
 Topic 4. Preparation for Stowage
 A. Pre-Stow Planning
 B. Preparations of Cargo Spaces
- Week 3: Assignment - pp. 136; 502-503
 Supplement - Safety and Health Regulations for Longshoring, U.S. Department of Labor
 Topic 5. Safety in Cargo Operations
 A. Health and Safety of Longshoremen
 B. Cargo Gear Certification
- Week 4: Assignment - pp. 270-283
 Topic 6. Boom Stress Analysis
 A. Analysis of Fixed Boom Stresses
- Week 5: Assignment - pp. 249-269
 Topic 7. Cargo Transfer Operations
 A. Movement of Cargoes
 1. Break Bulk, Tankers and Container Vessels
- Week 6: Assignment - pp. 149-158
 Topic 8. Cargo Plans
 A. Construction
 B. Analysis
 Assignment - pp. 56-58; 102-106; 230-238
 Topic 9. Mathematics of Stowage
 A. Suitable Weight Distribution
 B. Stowage Factors and Broken Stowage
- Week 7:
 C. Full and Down Stowage Procedures
 D. Computing Amount of Liquid in Tanks
 E. Pre-Computing Minimum Usage

U. S. Merchant Marine Academy

- Week 8: Assignment - pp. 113-130
 Topic 10. Securing and Security of Cargoes
 A. Break Bulk, Container and Ro-Ro Vessels
 Topic 11. Refrigerated Cargoes
 Assignment - pp. 211-218
 Supplement - Reefer Monograph by Charles L. Sauerbier
 A. Theory of Refrigeration
- Week 9:
 B. Refrigeration Machinery and Controls
 C. Preparation of Refrigerated Spaces
 D. Specialized Problems Associated with Refrigerated Cargoes
- Week 10: Assignment - 194-211; 238-240
 Supplement - National Cargo Bureau Grain Loading and Code of Safe Practices for Bulk Cargoes
 Topic 12. Specialized Cargoes
 A. Ores and Slurry
 B. Grain
 C. Bulk Ore

Appendix III F

United States Merchant Marine Academy. Cargo II

Course Outline

Textbook: Sauerbier, Charles L., Marine Cargo Operations, (John Wiley & Sons, 1956)

Reference Texts: Wooler, R. G., Tankerman's Handbook, (Edward Sweetman, 1956)

Tabak, Herman D., Cargo Containers, (Cornell Maritime Press, 1970)

- Week 1: Assignment - Sauerbier, pp. 426-441
 Topic 1. Psychrometric Studies
 A. Psychrometric Chart
 B. Moisture Equilibrium Diagram
 C. Water Vapor Contents and Control
- Week 2: Assignment - Sauerbier, pp. 459-488
 Topic 2. Dehumidification Equipment
 A. Cargocaire Components Model H
 B. Cargocaire Components Model 1500
- Week 3: Assignment - Sauerbier, pp. 441-468
 Topic 3. Moisture Movements
 A. Hygroscopic Cargoes
 B. Control of Moisture Movements
- Week 4: Topic 4. LNG Tankers
 A. The Nature of LNG
 B. LNG Tanker Construction
 C. Carriage of LNG
- Week 5: Assignment - Wooler, pp. 1-22; 81-88
 Topic 5. Bulk Oil Tankers
 A. Nomenclature and Construction
 B. Piping and Valving
 Topic 6. Bulk Oil Transfer
 A. Pumps and Pumping
 B. Loading and Discharging
- Week 6: Assignment - Wooler, pp. 25-29; 64-76
 Topic 7. Ballasting
 A. Consideration
 B. Procedures
 Topic 8. Cleaning and Gas Freeing
 A. Hazards
 B. Procedures
 C. Operation of Explosimeter

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- Week 7: Topic 9. Study of ASTM-IP Tables
 A. Explanation of Tables
 B. Problems Utilizing Tables
 Topic 10. Oil Pollution Prevention
- Week 8: Assignment - CG-123 and CG-174, as assigned
 Topic 11. A Study of Pertinent Operating Regulations
 Assignment - Tabak, pp. 1-15
 Topic 12. Unitized Cargoes
 A. Container Types and Construction
- Week 9: Assignment - Tabak, pp. 18-23
 Topic 13. Disposable Refrigerant Containers
 A. Construction
 B. Refrigerant
 C. Operation
 Topic 14. Comparative Study of Container Sizes
- Week 10: Topic 15. Containerization of Computers
 Topic 16. LASH and SEEBEE Systems

APPENDIX III

G

ADMIRALTY AND MARITIME LAW

Georgetown University Law Center. Admiralty
(Professor Gerald A. Malia)

Textbook: Gerald A. Malia, Maritime Law - Administrative Cases and Materials,
2nd edition, 1975.

The administrative law aspects of maritime law have developed into a distinctive field which now covers the major current issues such as national shipping policy, environmental and international issues.

Many administrative agencies have jurisdiction in the maritime field. The Federal Maritime Commission, the Maritime Administration and the Coast Guard may be the most familiar to the public at this time. In addition, a partial listing of other agencies is as follows:

Departments of Agriculture, Defense, Labor,
State and Transportation,
Interstate Commerce Commission,
Bureau of Customs,
Internal Revenue Service,
Federal Communications Commission,
Environmental Protection Agency,
General Accounting Office,
Renegotiation Board,
Cost of Living Council,
Armed Services Board of Contract Appeals, and
National Transportation Safety Board.

This book is intended as an introduction to this field for use in conjunction with a traditional Admiralty text.

Summary Outline

I. Constitutional Basis

II. Federal Maritime Commission

A. Jurisdiction

1. McCormick S. S. Co. v. United States, 16 F. Supp. 45 (N.D. Calif. 1936)
2. Scott Paper Co. v. Puerto Rico Maritime Shipping Authority, Docket 74-43
3. Fall River Line Pier, Inc. v. International Trading Corp. of Virginia, Inc., 399 F. 2d 413 (1968)
4. Matson Navigation Company--Container Freight Tariffs, 7 FMC 480, 490-94
5. Port of Boston Marine Terminal Association et al., Petitioners, v. Rederiaktiebolaget Transatlantic, 400 U.S. 62

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- B. Common Carriage
- C. Regulation of Rates
 - 1. Domestic Trades
 - a. Matson Navigation Company, FMC Docket 71-18
 - b. United States of America v. Seatrain Lines, Inc.
 - 2. Foreign Trades
 - a. Federal Maritime Bd. v. Isbrandtsen Co., 356 U.S. 481
 - b. Armement Deppe, S.A. v. United States, 399 F. 2d 794 (1969)
 - c. American Export-Isbrandtsen Lines v. Federal M. Com'n, 417 F. 2d 749 (D.C. Cir. 1969)
 - d. United States v. Pan American Mail Line, Inc., 359 F. Supp. 728 (S.D.N.Y. 1972)
- D. Regulation of Practices
 - 1. California v. United States, 320 U.S. 580
- E. Antitrust Issues
 - 1. Volkswagenwerk v. FMC, 390 U.S. 261
 - 2. Federal Maritime Commission v. Seatrain Lines, Inc., 411 U.S. 726
 - 3. FMC v. Svenska Amerika Linein, 390 U.S. 238, 19 L. Ed. 2d 1071, 88 S. Ct. 1005
 - 4. Carnation Company v. Pacific Westbound Conference, et al., 383 U.S. 213, 15 L. Ed. 2d 709, 86 S. Ct. 781
- F. Labor Issues
 - 1. New York Shipping Association, Inc., and International Longshoremen's Association, AFL-CIO, v. Federal Maritime Commission and United States of America
 - 2. N.L.R.B. v. National Maritime Union of America, AFL-CIO, 486 F. 2d 907 (1973)
- G. Energy
 - 1. Federal Maritime Commission Order Approval of Agreement No. 10118
- H. Judicial Review
 - 1. West India Fruit & Steamship Co. v. Seatrain Lines, 170 F. 2d 775
 - 2. FMC v. Australia/U.S. Atlantic & Gulf Conf., 337 F. Supp. 1032 (S.D.N.Y. 1972)

III. Maritime Administration

- A. Citizenship
 - 1. Collier Advertising Service v. Hudson River Day Line, 14 F. Supp. 335 (S.D.N.Y. 1936)
 - 2. United States of America v. Tanker Meacham, 107 F. Supp. 997, aff'd. 207 F. 2d, 535 (4th Cir. 1953)
- B. Construction-Differential Subsidy
 - 1. American Maritime Association v. Stans, 329 F. Supp. 1179 (1971), aff'd, 485 F. 2d 765 (D.C. Cir. 1973)
 - 2. Moore-McCormack Lines, Inc. v. The United States, Ct. Cl. No. 51-68 (July 16, 1969)
- C. Operating-Differential Subsidy
 - 1. American Mail Line, Ltd., et al., v. James W. Gulick, et al., 411 F. 2d 696
 - 2. Sea-Land Service, Inc. v. John T. Connor, et al., 418 F. 2d 1142 (1969)
- D. Capital Construction Fund
 - 1. United New York Sandy Hook Pilots Association, et al., v. Maurice H. Stans, Secretary of Commerce, et al.

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2. Tax Deferred Capital Construction Funds under 1970 Merchant Marine Program
 - E. Ship Financing Guarantees (Title XI)
 1. Extract from Calendar No. 1081 92D Congress 2d Session, Senate, Report No. 92-1137, Title XI--Ship Financing Amendments
 2. Attorney General's Opinion, (March 26, 1973)
 3. Pierside Terminal Operators, Inc. v. M/V Floridian, 374 F. Supp. 27 (E.D. Va. 1974)
 4. Note on Ship Financing Diagrams
 5. Conventional Title XI Financing
 6. Title XI Lease Financing
 - F. Cargo Preference
 1. Merchant Marine Act, 1936; Title IX--Miscellaneous Provisions
 2. Military Cargo Preference Law
 3. "Public Resolution 17"
 4. States Marine International, Inc. v. Peterson, (D.C. Cir. 74-1499, September 5, 1975)
 5. Cargo Preference Legislation
 6. Curran v. Laird, 420 F. 2d 122 (1969)
- IV. Coastwise Law
- A. Marine Carriers Corporation v. Fowler, 429 F. 2d 702 (2d Cir. 1970)
 - B. I Stat. 27 (1789)
 - C. II Stat. 351 (1817)
 - D. Gillentine v. McKneand, 426 F. 2d 717 (1970)
- V. Environmental Issues
- A. The Republic of Liberia--In the Matter of the Stranding of the S.S. Torrey Canyon
 - B. Askew, Governor of Florida, et al., v. American Waterways Operators, Inc. et al.
 - C. United States of America v. Ira S. Bushey & Sons, Inc., et al., Civ. A. No. 6380
 - D. Board of Commissioners of the Port of New Orleans v. Seatrain International S.A., Docket Nos. 73-42, 73-61, 73-69, 74-4
 - E. Policy and Procedures for Environmental Protection
 - F. Commonwealth of Pennsylvania et al., v. Federal Maritime Commission et al., Sea-Land Service, Inc., et al., Interstate Commerce Commission et al., Reported at 392 F. Supp. 795 Civil Action No. 75-363
 - G. Commonwealth of Pennsylvania et al., Sea-Land Service, Inc., et al., Civil Action No. 75-0363
- VI. Government Contract Appeals
- A. Alaska Barge and Transport, Inc. v. United States, 373 F. 2d 967 (Ct. Cls. 1967)
 - B. Northwest Marine Iron Works v. The United States
 - C. Gulf & South American Steamship Co., Inc., et al. v. The United States
 - D. Armed Services Board of Contract Appeals--Appeal of -- Sea-Land Service, Inc. Under Contract No. N0003367SA1029
- VII. International Agencies and Issues
- A. Annexes
 - B. Convention on the Territorial Sea and the Contiguous Zone
 - C. Convention on the High Seas

Appendix III G
 Georgetown University Law Center. Transportation Regulation
 (Professors Stanton Sender and Robert Calhoun)

Spring 1974

Part I - Four meetings on motor carrier operating authority (regulation of supply) law and policy, and related environment and energy issues.

Week 1: Subject - Introduction to course, and to motor carrier regulation; discussion of exempt and private carriage
 Assignment - Jones, Cases on Regulated Industries, pp. 505-520

Week 2: Subject - Discussion of basics of common carrier certification
 Assignment - Jones, Cases, pp. 524-535; United States v. Dixie Express, 389 U.S. 409, 19 L. Ed. 2d 639 (1967)

Week 3: Subject - Discussion of basics of contract carrier authority; adequacy of existing service; and I.C.C. regulation of service of motor carriers
 Assignment - Jones, Cases, pp. 535-558

Week 4: Guest - I.C.C. General Counsel, Fritz Kahn
 Subject - Policy issues in motor carrier operating authority regulation; and related environment and energy issues, including railroad abandonments
 Assignment - Jones, Cases, pp. 559-576; 388-393; and material distributed:

- A. on motor carrier regulation, and related environment and energy issues---
 1. Ex Parte MC-55 (Sub-No. 8), Motor Common Carriers of Property, Routes and Service (Petition for the Elimination of Gateways by Ratemaking), 119 M.C.C. 170 (Nov. 23, 1973);
 2. Ex Parte No. 301, Energy Crisis and the Need for Emergency Transportation Legislation, Notice and Order, Federal Register, Vol. 38, No. 231, Monday, Dec. 3, 1973, pp. 33355-33357; and
 3. General Policy Statements Concerning Motor Carrier Licensing Procedures (Operational Possibility), Nov. 23, 1973 (four pages).
- B. on railroad abandonment, and related environment and energy issues---
 Ex Parte No. 274 (Sub-No. 1)--Part 1121--Abandonment of Railroad Lines, Special Procedures, Federal Register Vol. 37, No. 15, Saturday, Jan. 22, 1972, pp. 1046-1049; and, Vol. 38, No. 230, Fri., Nov. 30, 1973, pp. 33086-33088.

Part II - Two meetings on railroad entry, service, coordination and common ownership.

Week 5: Subject - History of I.C.C. regulatory laws; basics of I.C.C. regulation of railroad operating authority and service.

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Assignment - Jones, Cases, pp. 52-64; 68-74; 85-87; 368-372, 376-378; 381-383; 393-394, 410-417; and 503-504

Week 6: Subject - Regulation of railroad coordination; common ownership; securities; and piggyback (TOFC)

Assignment - Jones, Cases, pp. 417-433, 447-450; 588-590; 658-685; and A. T. A. vs. A. T. S. and F., 387 U.S. 397, 18 L. Ed. 2d 847 (1967)

Part III - Air Carrier Regulation and the C.A.B.

Week 7: Subject - Introduction to airline regulation; and regulation of supply

Assignment - Jones, Cases, pp. 755-806

Week 8: Subject - Introduction to rate regulation; and rate discrimination

Assignment - Jones, Cases, pp. 223-250; and 281-314

Part IV - Water Carrier Regulation and the F.M.C.

Week 9: Guest - F.M.C. Commissioner, George H. Hearn

Subject - Policy issues in water carrier regulation, and the F.M.C.

Assignment - Jones, Cases, pp. 499-503; 882-892; Federal Maritime Comm. v. Svenska, 390 U.S. 238, 19 L. Ed. 2d 1071 (1968); Federal Maritime Comm. v. Seatrain, 41 Law Week 4621 (May 15, 1973), 36 L. Ed. 2d 620; and Locklin, Economics of Transportation (6th ed.), Chapter 34, "Regulation of Water Transportation," pp. 738-761

Week 10: Guest - Special Assistant to the Chairman, C.A.B., Tom Heye
Air Carrier Regulation and the C.A.B. (cont.).

Subject - Policy issues in air carrier regulation, including energy issues

Assignment - C.A.B. Materials on reserve

A. On air carrier mergers --

Jones, Cases, pp. 975-984; and American-Western Merger Case, Orders 72-7-91, and 72-7-92 (July 28, 1972) (C.A.B. Docket No. 22916) - read particularly pp. 1-4; 34-36 (Majority opinion); and Chairman Timm's dissent

B. On air carrier rates --

Domestic Passenger Fare Investigation (C.A.B. Docket 21866)

Phase 6B--Load Factor, Order 71-4-58 (April 9, 1971) -

read particularly pp. 1-7, 44-45 (majority opinion); and pp. 8-9 (dissent)

Phase 8 -- Rate of Return, Order 71-4-54 (April 9, 1971 -

read particularly pp. 1-12, 32 (majority opinion); and p. 23 (dissent)

Phase 5 -- Discount Fares, Order 72-12-18 (December 5, 1972)

read particularly pp. 60-66, 74-79 (majority opinion), and two page dissent;

Order 73-5-2, Supplemental Opinion and Order on Reconsideration August 10, 1973) - read both supplemental opinions, including dissents, but not appendices

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C. On capacity reduction agreements--
Application of United Air Lines, Inc. to engage in capacity reduction discussions, Order 73-4-98 (C.A.B. Docket 22098) April 24, 1973) - approving discussions; read.

Part V - Rate Regulation Issues

- Week 11: Subject - Maximum rate regulation; and environmental issues
 Assignment - Jones, Cases, pp. 199-202; U.S. v. Scrap, 41 Law Week 4886, 37 L. Ed. 2d 254 (June 18, 1973); and following I.C.C. decisions on reserve: Ex Parte No. 265/267, Increased Freight Rates, 1970, and 1971, 339 I.C.C. 125, read particularly pp. 161-171 (general revenue requirements), 179-183, 189-193, 205-209, 257-258 (ultimate conclusion and findings), 258-268 and 277-282 (dissents); Ex Parte No. 281, Increased Freight Rates and Charges, 1972, 341 I.C.C. 288, read particularly pp. 296-301 (revenue need and increased costs, 311-313 (price stabilization), 313-333 (fundamental consideration), 528-531 (ultimate conclusion and findings and conclusion opinion); Ex Parte No. 295, Increased Freight Rates and Charges, 1973, Nationwide, 334 I.C.C. 589, read particularly pp. 597-601 (rate increase proposal and revenue need), 617-621 (conclusion as to revenue need), 712-714 (ultimate conclusion and findings), 714-719 (Com'r O'Neal, concurring); and General Increase, Middle Atlantic and New England Territories, No. 24970, 332 I.C.C. 820 (1969)
- Week 12: Guests - Professor Robert Nelson, American University, and his class in Transportation Economics
- Week 13: Subject - Policy issues in transportation-economic regulation of rates, and legal issues in maximum and minimum rates cases and intermodal competition
 Assignment - Jones, Cases, pp. 600-656; American Com'l. Lines v. L. & N. (Ingot Molds), 392 U.S. 571, 20 L. Ed. 2d 1289 (1968); and following economic reading on reserve: The Yale Law Journal, Vol. 82, No. 4, March 1973, pp. 639-655, Baumol and Walton, "Full Costing, Competition and Regulatory Practice," and pp. 1426-1434, Noll and Rivlin, "Regulating Prices in Competitive Markets;" and I.C.C. Docket No. 34013 (Sub No. 1), Cost Standards in Intermodal Proceedings, Initial Decision, Daniel J. Davidson, Admin. Law Judge, May 7, 1973
- Part VI - Antitrust Issues, Rate Bureaus; Mergers; Reorganization and Nationalization
- Week 14: Subject - Introduction to antitrust issues; rate bureaus; and mergers
 Assignment - Jones, Cases, pp. 849-850, 870-882, 919-956; and on reserve: I.C.C. Order, Ex Parte No. 297, Rate Bureau Investigation, June 15, 1973, and Initial Statement of the Bureau of Enforcement, January 31, 1974

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Week 15: Guest - Robert Calhoun, Esq. of Sullivan and Worcester
Subject - Policy issues in mergers; reorganization and nationalization
Assignment - Jones, Cases, pp. 957-963; Penn Central case, 389 U.S.
486, 19 L. Ed. 2d 723 (1968); U. S. v. I.C.C. (Burlington Northern
Merger), 396 U.S. 491, 24 L. Ed. 2d 700 (1970); and on reserve:
D.O.T. - Rail Service in The Midwest and Northeast Region--A Report
by the Secretary of Transportation, Federal Register, Vol. 39,
No. 30, Tuesday, February 12, 1974, read particularly, pp. 5395-
5411

Appendix III G
 Texas A&M University, Moody College of Marine Sciences and Maritime Resources
Maritime Law I

Course Outline

- Texts: a) Rules of the Road, International-Inland (CG 169)
 b) Farwell's Rules of the Nautical Road (Ed A. Prunski)
 c) Handbook of Admiralty Law in the United States (Gustavus H. Robinson)
- Week 1: Preliminary: Applicability, Scope, and Definitions
 b) Chapter 2, pp. 15-33; Chapter 13, pp. 215-225
 c) pp. 31-54
- Week 2: Running and Anchor Lights
 b) Chapter 3, pp. 34-63; Chapter 4, pp. 226-246
 c) pp. 805-807
- Week 3: Towing Lights
 b) Chapter 4, pp. 64-98; Chapter 14, pp. 226-246
 c) pp. 805-807
- Week 4: Special Lights
 b) Chapter 5, pp. 99-128; Chapter 4, pp. 226-246
 c) pp. 805-807
- Week 5: Exam
 two periods - Applicability, Scope, Definition, Lights
 one period - Review Exam
- Week 6: Day Signals
 b) pp. 129-148
- Week 7: Sound Signs for Approaching Power Vessels and Meeting Head and Head
 b) Chapter 7, pp. 149-158
 Chapter 8, pp. 159-166
 Chapter 16, pp. 208-284, pp. 247-267, p. 475
- Week 8: Overtaking Power Vessels
 b) Chapter 9, pp. 167-174
 Chapter 17, pp. 285-300
 Crossing Power Vessels
 b) Chapter 10, pp. 175-181
 Chapter 18, pp. 301-319
- Week 9: No meetings
- Week 10: Rules in Fog, and the Annex to the Rules
 b) Chapter 11, pp. 184-194
 Chapter 19, pp. 320-344
 c) pp. 816-822

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- Week 11: Miscellaneous Rules and the Motor Boat Act of 1940
b) Chapter 12, pp. 195-211, p. 474
Chapter 20, pp. 345-361 (Special Circumstances)
Chapter 21, pp. 362-379 (Good Seamanship)
Chapter 22, pp. 381-394 (A Proper Lookout)
Chapter 23, pp. 395-409 (Inevitable Accident)
c) pp. 813-815 (Lookouts)
- Week 12: Ditto
Exam - two periods
- Week 13: Review Exam - one period
Commence examination of the Revised International Rules of the Road. Copies of the Rules will be available at this time for analysis.

Appendix III G

Texas A&M University, Moody College of Marine Sciences and Maritime Resources
Maritime Law II

Course Outline

- Texts: a) Rules of the Nautical Road (Farwell)
 b) The Law of Admiralty (Gilmore & Black)
 c) Admiralty Law of the Supreme Court (Baer)
- Week 1: a) History of Admiralty Law in the U. S.
 b) Gilmore & Black, Chapter I
 c) Farwell, Chapter I
- Week 2: a) Limitation of Liability, Gilmore & Black, Chapter X
 b) Limitation of Liability, Baer, Chapter II
- Week 3: a) Continuation of Limitation of Liability
 b) Salvage, Gilmore & Black, Chapter VIII
- Week 4: a) Examination
 b) Marine Insurance, Gilmore & Black, Chapter II
 c) Marine Insurance, Baer, Chapter I, Part 2
- Week 5: a) Rights of Ill or Injured Seamen, Baer, Chapters 1-6, Part 1
 b) Rights of Seamen and Maritime Workers, Gilmore & Black, Chapter VI
- Week 6: Continuation of Rights of Seamen
- Week 7: a) Lawful Lights, Farwell, Chapter 14
 b) Gilmore & Black, Chapter VII, pp. 395-414
- Week 8: a) Mid-Term Examination
 b) Conflicting Signals, Farwell, Chapter 15
 c) Gilmore & Black, Chapter VII
- Week 9: a) Meeting, Crossing and Overtaking, Farwell, Chapters 16-18
- Week 10: a) Continuation of Ninth Week
 b) Examination
 c) The Law in Fog, Farwell, Chapter 19, Annex to the Rules, Use of Radar and the Supreme Court, Gilmore & Black, pp. 422-424
- Week 11: a) Special Circumstances and Good Seamanship, Farwell, Chapters 20-21
 b) Pilotage, Gilmore & Black, pp. 429-432
- Week 12: a) Examination
 b) Proper Lookout, Farwell, Chapter 22
 c) Inevitable Accident, Farwell, Chapter 23
- Week 13: a) The Motorboat Act
 b) A comparative study of U. S. Coast Guard licensing for deck officers

Moody College

Week 14: a) A continuation of the above comparative study
b) Maritime laws for the licensed officer

Week 15: Review for final examination

Week 16: Final examination

Appendix III G
 United States Merchant Marine Academy. Marine Insurance

Course Outline

Textbook: Marine Insurance, Principles and Practices, Winter, William D.
 (Third Edition), McGraw-Hill

Week 1: Assignment - pp. 1-64

Topic

1. Historical Introduction
 - a. Origin of Marine Insurance
 - b. Bottomry and Respondentia Bond
 - c. Modern Marine Insurance
 - d. Lloyd's Underwriters
2. Physical and Commercial Geography
 - a. Physical Forces of Nature
 - b. Invoice
 - c. Bill of Lading
 - d. Letter of Credit and Bill of Exchange

Week 2: Assignment - pp. 86-109, 121-138

Topic

3. Factors in Marine Underwriting
 - a. Valued and Unvalued Policies
 - b. Categories into which Marine Losses Fall
 - c. Classification Societies
 - d. Reputation of Owners, Managers, and Master
4. The Contract of Marine Insurance
 - a. Definition
 - b. Elements of a Contract
 - c. Inquiry and Binder

Week 3: Topic

5.
 - a. Assurer and Assured
 - b. Insurable Interest
 - c. Payee of Loss
 - d. Open Policy
6. Clauses of the Policy
 - a. "Lost or Net Loss"
 - b. Terminal
 - c. Attachment of Risk
 - d. Warehouse to Warehouse
 - e. "Ex Dock Endorsement"

Week 4: Assignment - pp. 174-194

Topic

7. Perils Clause
 - a. Perils Insured Against
 - b. Perils not Insured Against
 - c. Doctrine of Proximate Cause
 - d. F. G. and S. Clause

U. S. Merchant Marine Academy

Week 5: Assignment - pp. 196-210

Topic

8. Special Clauses
 - a. Sue and Labor Clause
 - b. Franchise Clause
 - c. Carrier Liability
 - d. Abandonment and Subrogation
8. a. Mid-Quarter Examination

Week 6: Assignment - pp. 211-242

Topic

9. Basic Conditions
 - a. Memorandum Clause
 - b. Implied Warranties
 - c. Expressed Warranties
 - d. Representation, Misrepresentation, Concealment
10. Cargo Insurance as an Underwriting Problem
 - a. Under-Deck and On-Deck Cargoes
 - b. Physical Environment
 - c. Racial Characteristics
 - d. Port of Refuge Problems
 - e. FPAAC and FPAEC

Week 7: Assignment - pp. 262-280, 455-462

Topic

11. Ocean Time Hull Policy
 - a. Classes of Hull Insurance
 - b. Valuation of Vessel
 - c. Franchise Clause
 - d. Collision Liability

Week 8: Assignment - pp. 380-309

Topic

12. Special Hull Policies
 - a. Lake Hull Policies
 - b. Builder's Risk Policy
 - c. Port Risk Policy
 - d. Disbursement Endorsement

Week 9: Assignment - Bernard's Lectures on Protection and Indemnity Insurance

Topic

13. P and I Policy
 - a. Personal Injuries
 - b. Death Claims
 - c. Collision with Object Other than Vessel
 - d. Ship's Wash
 - e. Unseaworthiness

Week 10: Assignment - pp. 367-382, 405-422

Topic

14. General Average and Particular Average
 - a. Elements Essential for General Average
 - b. York-Antwerp Rules

U. S. Merchant Marine Academy

c. Contributory Values

d. Partial Loss

e. Proof of Loss and Proof of Interest

Week 11: Final Examination

Appendix III G
University of British Columbia School of Law. Maritime Law
(Professor J. R. Cunningham)

Course Outline

- I. Introduction to Maritime Law, history and jurisdiction of Admiralty Courts, and the action in rem
- II. Salvage
- III. Collision
- IV. Damages in Admiralty
- V. Personal Injuries and Fatal Accidents in Admiralty
- VI. Limitation of Liability with Respect to Ships
- VII. Tug and Tow
- VIII. Liens Against Maritime Property
- IX. Claims for Goods and Services Supplied to Ships - necessities, etc.
- X. Ship's Mortgages
- XI. Carriage of Goods
- XII. General Average
- XIII. Carriage of Passengers
- XIV. Charter Parties
- XV. Marine Pollution
- XVI. Marine Insurance

Statutes and Regulations

1. Federal Court Act (Sections relating to Admiralty Jurisdiction)
2. Canada Shipping Act (Sections relating to Apportionment of Fault)
3. The International Regulations for Preventing Collisions at Sea
4. Canada Shipping Act (Sections relating to Fatal Accidents)
5. Canada Shipping Act (Sections relating to Limitation of Liability)
6. Canadian Carriage of Goods by Water Act
7. Canadian Bills of Lading Act

Appendix III G

University of Delaware, College of Marine Studies. Maritime Law
(Professor Joseph Bockrath)

Course Outline

- I. Waters and Vessels
 - A. Waters
 - The Propeller Genessee Chief v. Fitzhugh, 53 U.S. 443
 - B. Vessels
 - 1. Offshore v. Robison, 266 F. 2d 769
 - 2. Cope v. Vallett Dry-Dock, 119 U.S. 625
 - 3. Noakes v. Imperial Airways, 29 F. Supp. 412

- II. Liens
 - A. Priority
 - 1. The John G. Stevens, 170 U.S. 113
 - 2. The William Leishear, 21 F. 2d 862
 - 3. Ship Mortgage Act, 46 U.S.C. § 921, 922, 951
 - 4. The Favorite, 120 F. 2d 899
 - B. Tax
 - U.S. v. Flood, 247 F. 2d 209

- III. Personal Injury
 - A. General
 - Kermarec v. Compagnie, 358 U.S. 625
 - B. M & C
 - 1. Warren v. U.S., 340 U.S. 523
 - 2. Farrell v. U.S., 336 U.S. 511
 - C. Jones Act
 - 1. Panama R. Co. v. Johnson, 264 U.S. 375
 - 2. Lauritzen v. Larson, 345 U.S. 571
 - 3. Braen v. Peifer, 361 U.S. 129
 - 4. Kerman v. American Dredging, 355 U.S. 426
 - D. Unseaworthiness
 - Mitchell v. Trawler Racer, Inc., 362 U.S. 539

- IV. Longshoremen
 - A. So. Pac. v. Jensen, 244 U.S. 205
 - B. Inter. v. Haverty, 272 U.S. 50
 - C. Longshoremen's and Harbor Workers' Compensation Act, 33 U.S.C. § 903, 904, 905
 - D. Calbeck v. Travelers Ins. Co., 370 U.S. 114
 - E. Seas Shipping v. Sieracki, 328 U.S. 85
 - F. Roper v. U.S., 368 U.S. 20
 - G. Guitierrez v. Waterman, 373 U.S. 206

- V. Wrongful Death
 - A. Death on the High Seas Act, 46 U.S.C. § 761
 - B. The Tungus v. Skougaard, 358 U.S. 588
 - C. Gillespie v. U.S. Steel, 379 U.S. 148

University of Delaware

- VI. Charter
 - A. Demise
 - Maysonet Guzman v. Ruiz, 369 U.S. 698
 - B. Time
 - Robins Dry Dock v. Flint, 275 U.S. 303
 - C. Voyage
 - Yone Suzuki v. Central Argentine R., 27 F. 2d 795

- VII. Carriage of Goods
 - Harter Act, 46 U.S.C. §§ 190-192
 - C.O.G.S.A., 46 U.S.C. §§ 1300-1315
 - A. Parties
 - Robert Herd v. Krawill, 359 U.S. 297
 - B. Perils
 - The Folmina, 212 U.S. 354
 - C. Unseaworthiness
 - Int. Nav. v. Farr, 181 U.S. 218
 - D. Nav. and Man
 - The Isis, 290 U.S. 333
 - E. Fire
 - The Venice Maru, 320 U.S. 249
 - F. Deviation
 - Atlantic Mutual v. Poseidon, 313 F. 2d 872
 - G. Container
 - Mitsubishi v. S.S. Palmetto, 311 F. 2d 382

- VIII. Salvage
 - The Blackwall, 77 U.S. 1
 - The Salvage Act, 46 U.S.C. 727-731
 - A. Prop.
 - Broere v. § 2133, 72 F. Supp. 115
 - B. Person ent.
 - Bertel v. Panama, 202 F. 2d 247
 - C. Life
 - Warshauer v. Lloyd, 71 F. 2d 146

- IX. General Average
 - A. Ralli v. Troup, 157 U.S. 386
 - B. The Jason, 225 U.S. 32

- X. Marine Insurance
 - Hooper v. Robinson, 98 U.S. 528

- XI. Collision
 - The Pennsylvania, 86 U.S. 125
 - Rules of the Road; Inter. 33 U.S.C. 1061-1094
 - Inland 33 U.S.C. 151-232
 - A. Fog
 - 76 Silver Palm, 94 F. 2d 754
 - B. Radar
 - Afran v. The Bergechief, 274 F. 2d 469

University of Delaware

XIII. Limitation of Liability

- A. Act for Limitation of Vessel Owner's Liability, 46 U.S.C. § 181-189
- B. The Main v. Williams, 152 U.S. 122
- C. The Linseed King, 285 U.S. 502

APPENDIX IV

SAMPLE LETTERS SENT TO INSTITUTIONS

REQUESTING INFORMATION ON MARINE TRANSPORTATION COURSES

UNIVERSITY OF DELAWARE
NEWARK, DELAWARE
19711

CENTER FOR THE STUDY OF MARINE POLICY
COLLEGE OF MARINE STUDIES

(302) 738-1215

The Center for the Study of Marine Policy is currently studying the various courses dealing with marine transportation offered in Canadian and United States law schools. While many laymen believe that the study of marine transportation ends with the port and its operation, we at the Center argue that the area is much broader. We believe that the study of marine transportation necessarily must include the activities of cargo transport to and from the port, the problems and operations of the modern seaport, trade and cargo patterns, international governmental organizations, public policies relating to the merchant marine, admiralty and maritime law, and the carriage of seaborne cargoes in general.

We would greatly appreciate any assistance you can give us in our study. If you offer, or have offered in the past, any courses in admiralty and maritime law, or any policy courses touching upon this broad concept of marine transportation, we would like to know about them. We would be most grateful if you would send us the syllabi of such courses, the date first offered and if they will be offered in the future. If you have any future plans for course offerings in this area, we would appreciate receiving information about them, also. Such assistance will aid us in no small measure.

Thank you very much for your time and help. With best wishes, I am

Sincerely yours,

Scott C. Truver

SCT/jjd

UNIVERSITY OF DELAWARE
NEWARK, DELAWARE
19711

CENTER FOR THE STUDY OF MARINE POLICY
COLLEGE OF MARINE STUDIES

(302) 738-1215

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We would greatly appreciate any assistance you can give us in our study. If you offer, or have offered in the past, any courses dealing with this broad concept of marine transportation, we would like to know about them. We would be most grateful if you would send us the syllabi of such courses, the expected distribution of students (lower- or upper-level undergraduate, graduate), the date first offered and if they will be offered in the future. If you have any future plans for course offerings in this area, we would appreciate receiving information about them, also. Such assistance will aid us in no small measure.

Thank you very much for your time and help. With best wishes, I am

Sincerely yours,

Scott C. Truver

SCT/jjd

UNIVERSITY OF DELAWARE
NEWARK, DELAWARE
19711

CENTER FOR THE STUDY OF MARINE POLICY
College of Marine Studies
(302) 738 - 1212

Last spring, the Center for the Study of Marine Policy began a Sea Grant-sponsored study of the current status of maritime transportation curriculum in United States colleges and universities. At the present time we are enlarging the study and have contacted additional institutions.

Please find enclosed a copy of the description pertaining to your offerings in maritime transportation. If you would, please review the description and make all clarifications and revisions you believe are necessary. Also, if you plan to offer any additional courses, please send a description and course outline if available. We would appreciate very much receiving your reply by mid-December. Our press date has imposed a time constraint upon us, and if we do not hear from you, the description will be included as is.

Thank you very much for your assistance. With best wishes, I remain

Sincerely yours,

Scott C. Truver

SCT/jd
Enc.