

The On-line Exchange Program of International Class for Maritime Studies (2021)

Shanghai Maritime University will offer on-line lectures in 2021 spring semester on maritime studies for undergraduate students in maritime-related partner universities/colleges of SMU. Eminent Professors from SMU are invited to give instructions or knowledge for students to keep up with the new developments in the maritime fields.

1. Lectures information:

Lectures could be mainly divided into 3 fields: **International Maritime Business, Marine Transportation (in Navigation Technology), and Marine Engineering**, while students could choose any session they are interested in. Information on each lectures and lecturers could be found in the appendix.

2. Program features:

- ◇ Tuition-free
- ◇ Full-English lectures for international students;
- ◇ Chinese students are invited to join in the study program

3. Program Duration: From March to June, 2021, 1 lecture lasting around 1.5 hours on each Wednesday afternoon 15:30-17:00(Beijing time)

4. Student Registration date: **present to March 5th, 2021**

5. Required documents from candidates:

- ◇ Application Form for International Students at Shanghai Maritime University

6. Apps used for class and the detailed arrangements for each lectures will be released after the registration.

For further information, please contact:

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Appendix: Lectures Introduction of Exchange Program of International Class for Maritime Studies**[Lecture 1: Can free trade zones spur port sector growth? Evidence from China's economic reform](#)****Abstract**

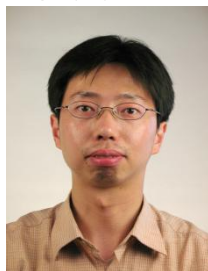
In order to promote the overall reform of China's economic system, a total of 12 provinces and cities have been approved to set up free trade zones (FTZ) since 2013 in a bid to reduce administrative interventions, ease restrictions on investments, further open up its financial system, and to booster shipping, logistics, and commerce. Ports are transitioning into fourth-generation ports with the establishment of logistics and value-added activities, which are developed in conjunction with local industrial and service businesses. In addition, FTZ lifts some cabotage restrictions and allows ships registered under flags of convenience (as long as these are still managed and controlled by Chinese companies) to conduct container transport businesses between the FTZ and other mainland ports. It is widely believed that shipping rates could become competitive, and the ports may attract increased transshipment as a result. In order to test whether this is the case, our research adopts a difference-in-difference model to study the impact of the FTZ policies on the throughput of the ports concerned. Unfortunately, these FTZ policies have no little impact on the port throughput growth. We provide several explanations for this finding.

Biography

Dr. Zheng Wan is professor and Ph.D. supervisor at the International Shipping Department of Shanghai Maritime University. His main research interests include international shipping management and public policy on maritime affairs. Dr. Wan is a principal investigator for several national and provincial-level projects. He has been the recipient of the “Liu Haoqing” Award for Educational Excellence. He has also been supported by the Yong Elite Scientists Sponsorship Program by the China Association for Science and Technology as well as the Youth Talent Support Program by the Shanghai Government. In 2013, as a key member of the team, Dr. Wan shared the top-grade award for higher education teaching in Shanghai. In 2018, he was awarded the second prize of the Shanghai Municipal Award for Outstanding Achievements in Philosophy and Social Science. Dr. Wan’s team has been invited to write for Nature, a world’s leading multidisciplinary science journal (See Nature, 530. 275–277; Nature, 540. 27–29; Nature 560, 161-163.) Important views on green shipping and international maritime governance have been widely cited.

[Lecture 2: Container Port Operation and Governance in China](#)**Abstract:**

This seminar discusses the latest development in the container operation and governance reform in the port industry in China. After describing the geographic layout of the Chinese ports, some theoretical models on port governance are introduced and applied to the empirical studies based on the costal ports in China. Specifically, the largest infrastructure construction project in the peaceful time of the history in China, the Yangshan Deepwater Port, is explored to demonstrate the port’s contributions to the regional logistics and economy. The other latest policies, e.g., the Road and Belt Initiatives and the Sino-European Cargo Express, are also investigated.

Biography

Shiyuan Zheng is a full professor in the College of Transportation in Shanghai Maritime University in China. He got his Ph.D in Shanghai Jiaotong University major in Management Science and Engineering. His research interests include port governance, game theory under incomplete information, port and shipping operation management. He has published more than 40 papers in international journals, including some top ones in the transportation area, e.g., Transportation Research Part B, C, D, E.

Lecture 3: Governance of oil spills from global tankers**Abstract**

Oil is a main driving force when it comes to the economic development of a country. But nations around the world have uneven oil distribution, which pushes them toward rapid development of petroleum trade and maritime transportation. With the rising maritime transportation volume of oil, oil spills from sea tankers not only cause huge economic losses and waste of resources but also inflict tremendous damage to the marine environment. Therefore, countries around the globe are paying increasing attention to the safe transportation of oil. This research reviews the history of world oil trade and oil spill pollution and puts forward oil spill treatment strategies. The research looks at the data related to oil spills created by tankers in the past 50 years and studies the trends in oil trade and oil spill pollution, in a bid to analyze the pollution status of typical oil spill accidents and the development of treatment regulations. The research also explores key factors behind oil spills from tankers and summarizes strategies and directions for the global marine shipping industry to treat oil tanker pollution in the future based on the aforementioned research. This study offers systematic and scientific information reference for green operation and management of the oil tanker industry and helps government departments and policymakers to adopt reasonable and effective strategies to prevent and handle oil spill accidents from tankers across the world.

Biography

Jihong Chen is a professor at Shanghai Maritime University, China. His research expertise focuses on port and shipping management, ocean and maritime environmental governance.

He has long been engaged in academic research in marine fields with rich research experiences and achievements. He has published more than 150 academic papers, including publications in Nature, Marine Pollution Bulletin, Ocean Engineering and Journal of Navigation. In particular, two significant articles on ocean and maritime environmental governance were published in the journal of Nature, one of them was the cover story, the other one was included in the official publication of United Nations International Maritime Organization (IMO), and the related topic was escalated to IMO conference agenda. He has conducted more than 80 international, national, provincial and other industrial marine projects, and has received over 20 awards and honors from the government, industry associations, maritime departments, etc. He is an elected expert member of a number of marine academic institutions and maritime enterprises in China.

Dr. Chen currently serves as the Co-Editor-in-Chief of Ocean and Coastal Management (OCMA),

Associate Editor of Regional Studies in Marine Science (RSMA), and editorial board member for several other journals.

[Lecture 4: Methodologies for Estimating Shipping Accident Frequency and](#)

Abstract

In this study, we will first provide an overview on the maritime traffic safety analysis, focusing on the challenges in predicting maritime traffic accident risk, such as ship collision accident frequency, shipping accident injury severity, mortality as well as the property damage cost resulted in maritime traffic accidents. We will then highlight research trends and methods applied to predict maritime traffic accident risk including the occurrence frequency and consequence of shipping accidents.

Biography



Dr. Jinxian WENG is currently a full Professor in College of Transport and Communications, Shanghai Maritime University. He is the director of Waterway & Roadway Traffic Safety Research Centre and the Head of Traffic Engineering Department. He received a Doctor of Philosophy Degree in Transportation Engineering from National University of Singapore in 2011. His research interests focus on traffic modeling, big data analysis, maritime traffic safety prediction and behavioral analysis. On these topics, he has published over 100 technical articles in referred journals and conference proceedings, including his journal articles appeared in leading journals such as Journal of Navigation, Ocean Engineering, Accident Analysis and Prevention, IEEE Transactions on Intelligent Transportation Systems, etc. His Google-scholar H-index is 23. As the principle investigator, Dr. Weng has completed many projects supported by the Natural Science National Natural Science Foundation of China, the Shanghai Shuguang Talent Program, Shanghai Youth Talent Program, and Youth Science & Technology Excellence Program sponsored by Ministry of Transport. Dr. Weng is currently served as an Associate Editor of Journal of Transportation Safety & Security and an Advisory Board Member of International Journal of Transportation. He has also been a member of many professional committees such as China Institution of Navigation.

[Lecture 5: Optimal Operations and Resource Allocation for Improving Shared-Mobility Systems](#)

Abstract

Shared-mobility systems allow users to access transportation services on an as-needed basis through shared use of vehicles, infrastructures, or other transportation resources. Successful implementations of shared-mobility systems yield a variety of economic, environmental, and social benefits. However, significant imbalance between spatiotemporal distributions of the resource supply and travel demand often exists and poses a pressing challenge to maintaining sustainable operations of such systems. This presentation discusses a couple of recent attempts at addressing this resource allocation issue in the contexts of bike-sharing and ridesharing. We specifically aim at answering the following questions: (i) how to effectively plan and carry out bike-rebalancing operations for large-scale bike-sharing systems through a continuous-discrete hybrid modeling approach; (ii) how to improve the utilization of ridesharing vehicles through optimal path-based

pricing and vehicle dispatching decisions?

Biography



Chao Lei, Ph.D., is now a full professor at the College of Transport & Communications at Shanghai Maritime University, China. He received his Ph.D. in industrial engineering from Tsinghua University, Beijing, in 2015, and B.E. from Tongji University, Shanghai, in 2009. Dr. Lei also worked as a Postdoctoral Research Associate in the Department of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign (UIUC), where he also serves as the coordinator for the Chinese-American Railway Transportation Joint Research Center. His research mainly focuses on resource allocation in a dynamic and stochastic setting, service planning under uncertainty, and model applications to smart cities, shared-mobility, transit, freight railroad, and energy industries.

Lecture 6 Maritime Transport and Environment

Abstract

This presentation is concerned with three issues. First, where does the pollution come from in maritime transport? Second, how may we reduce the emissions from maritime transport from the perspective of operations and optimisation? Third, how can the government act against maritime transport emissions?

Biography



Dr. Ge, since December 2013, has been Professor and Dean of the College of Transport & Communications at the Shanghai Maritime University (SMU). Before that, he spent his career in The Hong Kong Polytechnic University, University of California at Davis, Ulster University, Queen's University Belfast, Edinburgh Napier University and Dalian University of Technology. His primary academic interests include transportation network analysis, transportation policy & the environment, and operations and management of ports & shipping. His publications appear mainly in Transportation Science, Transportation Research Parts B & D, Maritime Policy & Management, Networks and Spatial Economics, Transportmetrica A & B, as so on. He serves as associate editor for international scholarly journals of Transportation Research Part D: Transport and Environment, Maritime Policy & Management, Transport (SCI), Transportmetrica (B, transport dynamics), and is a member of the editorial boards of Transport Policy, Transportation Informatics and Safety and Journal of the Shanghai Maritime University.

Lecture 7: Principle of ship stability and trim

Abstract

Mainly introduce geometry of the ship, draft readings and water density, calculations with drafts, theory of transverse stability, determination and calculation of vessel's KG/KM/GM/righting arm GZ, vessel form coefficients, vessel inclining experiment, trim and the measures to counter trim, large angle of inclination, free surface effect, ect.

[Lecture 8: Practice and application of ship stability and trim](#)

Abstract

By analysis on some cases of vessel capsizing and demonstration of GM calculations, show methods of obtaining ship's stability and trim, so that students can learn how to use the basic knowledge of stability and trim to optimize the vessels' loading condition. Let students understand how to use ballast water or cargo shift to solve the practical problems when the stability of the ship is insufficient or too large. Show the process of calculating the stability of a ship to meet the loading and unloading requirements of the awkward cargo in order to ensure the safety of the ship.

Biography of Speaker:

WANG Deling, Shanghai Maritime University, Associated professor, Master marine, Maritime lawyer, Technical officer of Maritime Technology Cooperation Center for Asia(MTCC-Asia).

Main area of expertise:

- Teaching maritime courses such as "Trim and Stability", "Introduction to international maritime Convention and Regulations", "Bridge Management Resources", "Ship Construction and Equipment", "Safety Management on Oil Tankers", "Advanced Shipboard Fire-fighting", and etc.;
- Undertaking various maritime safety training projects;
- Being involved in MTCC-Asia training programs as an instructor, teaching courses on Energy Efficiency and Data Collection on ships;
- Tracking and researching continuously on IMO maritime conventions, codes, standards and guidance, and being quite familiar with IMO legal system;
- Drafting proposals to IMO as invited by China MSA;
- Dealing with cases of ship collision and seafarer related disputes as a maritime attorney.

[Lecture 9. Containerization and modern cargo operation](#)

Abstract

This lecture will cover the basic characteristics of seaborne cargo, the cargo operation for container vessels, cargo handling and proper stowage and securing of cargos. These information, knowledge and practical skills are necessary for the deck officers as well as the managers of shipping companies in order to ensure maritime safety and high efficiency.

[Lecture 10. Dangerous goods and IMDG Code](#)

Abstract

This lecture will introduce the basic concept, categories and characteristics of dangerous good to be transported at sea. The structure and content of IMDG Code will be introduced as well as the Mark, Package, stowage and Separation of dangerous goods. The instruction for dangerous goods transportation will be also discussed.

Biography of Speaker:

Ms Xie Jieying is a senior lecturer in the navigation department of Shanghai Maritime University (SMU). Apart from being a teacher, she is also a certified deck offer. She the Master's degree in

Maritime Safety and Environmental Administration from World Maritime University in Malmo, Sweden in 2013. She is now a doctoral candidate in Vehicle Operation Engineering in SMU. In recent years, she has engaged in Marine Cargo Stowage education for students in SMU. She has actively taken part in related studies and projects involving Modern Cargo Operation.

[Lecture 11. GMDSS Briefing](#)

Abstract

This presentation aims to provide the participants with a broad view on the implementation of Global Maritime Distress and safety System on board ship. The basic functions of onboard GMDSS equipment, the personal requirement, GMDSS sea areas and the GMDSS compliant equipment for different sea areas as well as the processing of MSI will be introduced. Meanwhile, for the effective use and management of the onboard GMDSS installation, associated knowledge and practical skills will also be covered from the manager's perspective. Based on these basic knowledge, a comprehensive application of onboard GMDSS equipment will be introduced through a case study.

[Lecture 12. IMO GMDSS Modernization Plan](#)

Abstract

The implementation of GMDSS on board ships has been more than 20 years. IMO realized that as a communication system, GMDSS need to be fully reviewed, pursuing an effort for the introducing of advanced communication technologies and systems. The Presentation will introduce working programs of IMO MSC relating to the agenda items of GMDSS Modernization Plan, with a view for the students to know the general progress of this event. The second part will focus on the 13 sections contained in GMDSS modernization plan, to give the participants a whole view on how the plan will be carried out and what new technology will be combined into GMDSS. Finally, the relation between GMDSS and e-Navigation will be followed, which will present the learners with a completely new role of GMDSS in the future maritime shipping.

Biography of Speaker:

Feng Zhou, associate professor, is a master mariner of Shanghai Maritime University, who has a sea working experience for more than 5 years, and served for various types of ships covering the world main shipping routes and ports. He engaged in the research of maritime traffic information processing and the application of big data on the promotion of ship's operational energy efficiency. He has been teaching the course of Marine Radio Communication Services (GMDSS) since 2008. The combination of sea working and class teaching experience enable him to deliver quality teaching and research works. Over the last two year, he was also authorized as representatives by NGOs to attend the IMO meetings for many times. This gives him the chance to engage in the development of IMO proposal works and to follow the most advanced maritime shipping topic. The proposal relating to the topic of GMDSS Modernization Plan is one of the work he engaged in.

[Lecture 13. Overview of fluid mechanics applications](#)

Abstract

Engineering Fluid Mechanics is the science of the law of equilibrium and motion of fluids, which

include gases and liquids. It is an important basic technical course stretching across various fields and specialties. Knowledge of fluid mechanics is required in various fields such as energy, power, environment, industry, chemistry, building, aviation and national defense, etc. Students of Marine Engineering specialty need the knowledge of fluid mechanics in Engineering design or other technical work.

[Lecture 14. Application of fluid mechanics in Marine Engineering](#)

Abstract

Fluid mechanics is not only an age-old subject, but also a new fashion subject which can be researched on quite widely fields. There are many questions about fluid mechanics in these departments, such as in aviation, spaceflight, navigation, astronomical weather, physical geography, water conservancy and hydropower, heat energy refrigeration, building construction and environmental protection, petroleum and chemical engineer, transporting air and liquid, combustion and explosion, metallurgy and mining, biology and sea, war industry and nuclear energy, machine building, mechanical engineering etc. This time, we will be focus on the application fluid mechanics in marine engineering.

Biography of Speaker:

CHEN Lei, PhD, associate professor, master supervisor Male. In 2008, he received a doctorate degree from Dalian Maritime University, China. He was a visiting scholar at the University of Calgary in Canada from 2016 to 2017. Teaching courses: fluid mechanics, engineering thermodynamics and heat transfer, etc.

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[Lecture 15. Overview of Electronics Course](#)

Abstract

This course firstly introduces several ideal, lumped elements including resistors, voltage sources, and current sources. Then, it introduces KVL and KCL and discusses their relationship to Maxwell's Equations. It then uses KVL and KCL to analyze simple resistive networks and also presents more sophisticated methods for network analysis. Next, this course introduces storage elements, namely, capacitors and inductors and discusses first order transients in networks. This course also introduces several major applications of first-order networks, including filters. Then it analyzes second order transients in networks and discusses the resonance properties of RLC circuits from a time-domain point of view. This course also discusses sinusoidal steady state analysis as an alternative to the time-domain transient analysis. It also introduces the concepts of impedance and frequency response from a frequency point of view.

[Lecture 16. Introduction of Feedback Control Theory](#)

Abstract

By taking the electric circuits as controlled objects, this topic tries to establish the connection between the circuits knowledge and feedback control theory knowledge, and covers the basic concepts such as dynamical systems modeling, transfer functions, block diagram manipulations, time domain analysis, stability analysis as well as frequency domain analysis.

Biography of Speaker:

Chen Wentao, Ph.D., associate professor

He received bachelor's and master's degrees from Wuhan University of Technology in July 1999 and March 2002, respectively, and received his doctorate from Shanghai Jiaotong University in October 2010. At present, he is mainly engaged in the teaching and research of automatic control system in marine engine room, and has published many academic papers in international journals such as IET Control Theory & Applications, Optimal Control Applications and Methods, International Journal of Control, Automation, and Systems, ISA Transactions, etc. He has edited several teaching materials, such as English for Ship Electronics and Electrical Engineering, English Listening and Conversation for Electrical and Electronic Engineers, and Automatic Control System for Marine Engines.

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Lecture 17. Introduction of Energy Utilization**Abstract**

This speech introduces the history of human energy utilization. The current world energy structure and the development direction of energy utilization.

Lecture 18. A Brief History of Engineering Thermodynamics**Abstract**

This speech mainly introduces the development history of Engineering Thermodynamics, including the introduction of the four basic laws of Engineering Thermodynamics.

Biography of Speaker:

Dr. Jiang Aiguo is lecturer at Merchant Marine College of Shanghai Maritime University. Dr. Jiang received his Ph. D. degree in 2008 at University of Science and Technology of China.