



## Institute of Transport and Logistics Studies

144 Burren Street, Newtown, Sydney

Directions and map: <http://sydney.edu.au/business/itls/about/directions>

**Note:** ITLS is not on the main campus

**Please see the ITLS website for other important details about units at ITLS:**

[http://sydney.edu.au/business/itls/courses/transport\\_and\\_logistics](http://sydney.edu.au/business/itls/courses/transport_and_logistics)

---

### **ITLS student enquiries office:**

Email: [business.itlsinfo@sydney.edu.au](mailto:business.itlsinfo@sydney.edu.au)

Office: Room 312B, Level 3, ITLS, 144 Burren Street, Newtown

**Assessment collection / viewing:** Monday to Friday 12pm to 1.30pm ONLY

### **Timetable:**

Please note that the timetable provided in this outline is subject to change. You should check your timetable on MyUni for final dates and to see which group you have been assigned to, see: <http://myuni.usyd.edu.au/>



## TPTM6190

Logistics Systems

Semester Two 2011

### Unit of study outline

---

Unit Coordinator: Andrew Collins

Phone: (02) 9351 0075

Email: [andrew.collins@sydney.edu.au](mailto:andrew.collins@sydney.edu.au)

Office: ITLS Building, Level 2, Room 210

Consultation times: By appointment.

Please use email as your first method of communication.

### Classes

Class times: 9:00AM to 5:00PM

Venue: LT1 and CR2, Level 3, ITLS Building, 144 Burren Street, Newtown

Class	1	2	3	4	5	6
Day	Monday	Monday	Monday	Monday	Monday	Friday
Date	8 August 2011	22 August 2011	5 September 2011	19 September 2011	17 October 2011	21 October 2011

See Section 7 for more information about each class and other important dates.

## 1. Unit of study information

### 1.1. School handbook description

This unit provides an in-depth introduction to various analytical tools, techniques and software which are useful in the design and day to day operations of logistics organisations and integrated supply chains. Emphasis in the unit is on which tools (in particular, students will be exposed to Enterprise Resource Planning tool) to use and when to use them in order to improve the overall performance and reduce costs in operating within supply chains. The unit will be taught from a managerial perspective, addressing issues such as better forecasting, inventory management and transportation. The unit is taught in lecture and lab formats and will in addition involve significant self instruction.

### 1.2. Pre-requisite units

The pre-requisite unit of study for this course is TPTM6495 Analysis Tools for Transport and Logistics and TPTM5001 Logistics and Supply Chain Management (TPTM5001 was previously TPTM6155 Logistics and Supply Chain Management) is a co-requisite unit. Students who have passed TPTM6155 do not need to complete TPTM5001 as well.

### 1.3. Assumed knowledge and/or skills

You are assumed to have successfully completed TPTM6495 Analysis Tools for Transport and Logistics.

### 1.4. Workload requirement

It is expected that you will spend around 150 hours on this unit (including preparing for and attending classes) and produce approximately 9,000 words or equivalent of work. This time should be made up of reading research, working on exercises and problems and participating in classes. In periods where you need to complete assignments or prepare for examinations, the required workload may be greater.

## 2. Learning aims and outcomes

### 2.1. Aims of the unit

This course is an introduction to statistical analysis and management science as applied to logistics practices. Students will be introduced to a range of important techniques through the use of varied examples and case studies where appropriate. In addition to the study of theory, the course equips students with practical analytical and quantitative skills that they can apply in the workforce. Central to this is the role that software plays in logistics systems. The course aims to both demonstrate the power and flexibility of spreadsheet software such as Excel with respect to solving logistics problems, and further develop the students' skills in the use of this software. The role of enterprise resource planning software is examined, and hands-on experience is provided with the Odyssey2Go package. Where off the shelf software packages may be used to solve logistics problems, students are encouraged to think critically about the role the software may play, the limitations it may have, and the decision of whether to use the software or develop an alternative solution from first principles. By design, we have been selective in the topics and methods covered, preferring to equip participants with insights into some key methods rather than a superficial overview of a wider range of theories and methods. The specialised rigour will provide a better training for tackling topics beyond those covered within the course. Successful completion of the course will see students being able to apply concepts, techniques and principles that underlie logistics and supply chain management as well as use systems approaches to logistics to solve business problems. Specifically, this unit of study relates to previously studied units within the logistics program by providing practical skills to theories that have already been covered.

## 2.2. Learning outcomes

On completion of this unit you should be able to:

1. Identify, define and analyse problems within real-world constraints.
2. Choose analytical methods that are suitable for the task at hand.
3. Manage, analyse, evaluate and use information efficiently and effectively.
4. Analyse and apply knowledge in a range of logistics settings.
5. Develop coherent arguments when recommending solutions and critically evaluating theories related to supply chain principles and practices.

## 2.3. Links between learning outcomes and learning and teaching methods

Lectures form the backbone of this unit, complemented by hands on lab work. A special focus will be placed on real-world constraints and the choice of suitable analytical methods, across a range of logistics settings. Extensive worked examples will be provided. Various readings will be available electronically, and students are encouraged to ask questions and discuss the topics on the online discussion forum.

## 2.4. Links between learning outcomes and assessment

The assessment tasks for this unit are designed to help the students achieve and demonstrate the course learning outcomes. The assignments in particular are framed within real-world constraints, and make use of data that would typically be available to a company, instead of a clean, 'academic' dataset. As such, information must be efficiently and effectively handled. Across all assessment tasks, students need to choose and apply appropriate analytical methods, and coherently argue why those methods are appropriate.

### 3. Assessment

Assessment items	Relevant unit learning outcome/s	Word length	Weight	Due Date*
1. Inventory management computer exam	1, 2,4	1,000	20%	5 September 2011
2. Demand forecasting paired assignment	All	2,500	25%	12 September 2011
3. Descriptive and evaluation techniques exam	1,2,4	1,000	15%	17 October 2011
4. Odyssey2Go and ERP computer exam	2, 3,4,5	1,000	20%	21 October 2011
5. Computational logistics paired assignment	All	2,000	20%	4 November 2011
Academic honesty module **		N/A	0%	15 August 2011

\* The due date is also the closing date. This means that assessment items will not be accepted after the due date except by prior agreement.

\*\* Students must complete the academic honesty module in Blackboard with a mark above 80% by the final day of exams, or an Absent Fail (AF) grade will be given for the entire unit. Students can complete the module multiple times until this grade is achieved. Students who completed the module with a score of 80% or above last semester do not need to do it again.

All assignments must be submitted electronically via Blackboard. Assignments submitted electronically via Turnitin do not require cover sheets. Ensure that your student ID number (SID) is in the top right hand corner of each page for individual assignments and the Group name or number plus SID of all members is in the top right hand corner for group assignments. Full information about how to prepare assignments for electronic submission can be found in the Turnitin Student Guide:

[http://blackboard.econ.usyd.edu.au/webapps/portal/frameset.jsp?tab\\_group\\_id=20\\_1](http://blackboard.econ.usyd.edu.au/webapps/portal/frameset.jsp?tab_group_id=20_1)

Should submission problems occur, students should contact Business School eLearning Support first on 9036 6433 or [business.elearning@sydney.edu.au](mailto:business.elearning@sydney.edu.au) or the Unit Coordinator as soon as possible.

#### 3.1. Detailed assessment information

##### 1. Inventory management exam (20% of final mark). Starts 5 September 9am

**Rationale:** Understanding inventory control procedures is critical to the logistical processes of firms today. Knowing when to order, how much to order and what to order are skills that all logisticians should understand and be able to apply. Students will be required to undertake an exam in the computer lab related to the ordering and inventory control processes for several products of a hypothetical company. The exam will be largely completed in an Excel file, to help facilitate the necessary calculations.

**Details:** This assessment component is designed to test students' knowledge of inventory control and co-ordination. Students will need to demonstrate knowledge of inventory control, in particular how to calculate order quantities, and re-order points, etc. The assignment task is specifically designed to test student knowledge and comprehension of inventory management. You will be required to undertake approximately 20 to 25 hours of work outside of class times in preparation for this exam.

**Criteria:**

1. Understand and be able to apply different inventory management control systems;
2. Identify and apply appropriate inventory forecasting and inventory management techniques to multiple product types; and
3. Make suitable recommendations based on facts.

## 2. Demand forecasting paired assignment (25% of final mark). Due 12 September 6pm

**Rationale:** Understanding how to predict demand for inventory products is an important function carried out by many organizations. This report, which is to be done in student pairs, builds on the techniques learnt in TPTM6495 dealing with demand forecasting, as well as a variety of techniques taught in this course. Students will be required to demonstrate knowledge of how to determine what methods for forecasting of products should be used and when, as well as be able to apply these different techniques to data provided as part of a detailed case study. This assessment will allow students to work with real world like data in order to learn the difference between theory and practice.

**Details:** This assessment component is designed to test students' knowledge of demand forecasting. Students will need to demonstrate knowledge of statistical methods used to forecast demand for various stock products. You will be required to undertake approximately 20 to 25 hours of work on the assignment outside of class times. Further instructions and a marking criteria will be provided on Blackboard. The report should be no longer than 12 pages in length, not including any appendices.

**Criteria:**

1. Correctly clean data;
2. Understand and be able to apply different inventory forecasting methods;
3. Identify and apply appropriate inventory forecasting techniques to multiple product types; and
4. Make suitable recommendations based on facts.

## 3. Descriptive techniques and evaluation techniques exam (15% of final mark). Starts 17 October 9am

**Rationale:** Descriptive methods are used to describe aspects of an operation in such a way as to increase understanding of what is happening. Knowing how to calculate throughput efficiency, reliability measures, etc. are skills that all logisticians should understand and be able to apply. This assessment will test students understanding of such calculations, including when and how they should be performed. Students will be required to undertake an exam in the computer lab. The exam will be largely completed in an Excel file, to help facilitate the necessary calculations.

**Details:** Students will need to demonstrate knowledge of evaluation techniques and descriptive methods. The assessment task is specifically designed to test student knowledge and comprehension of logistics management practices. You will be required to undertake approximately 15 to 20 hours of working on the assignment questions outside of class times.

**Criteria:**

1. Work with financial and other company data;
2. Understand and be able to apply management control systems;
3. Identify and apply appropriate methods and techniques; and
4. Make suitable recommendations based on facts.

## 4. Odyssey2Go computer exam (20% of final mark). Starts 21 October 11am

**Rationale:** The use of ERP systems is prevalent within most companies. Understanding how such systems work is critical to career development in the logistics field. In this course, students will be taught how to use and operate an ERP system to manage and control inventory stock. Further, some of the underlying principles and key developments in ERP are introduced.

**Details:** This assessment component is designed to test students' knowledge of the Odyssey ERP system. Students will be required to undertake tasks using the ERP system within the computer lab, and answer short answer questions based on an understanding of the role and key features of ERP systems. Students should undertake approximately 15 to 20 hours of study within the computer lab outside of class times before attempting the exam. Further instructions will be posted on Blackboard.

**Criteria:**

1. Demonstrate competency in using the Odyssey system.
2. Demonstrate an understanding of the role of ERP in the logistics cycle.

### 5. Computational logistics paired assignment (20% of final mark). Due 4 November 6pm

**Rationale:** Computational logistics involves the planning and implementation of systems to efficiently direct the flow and storage of goods, and also services, from their point of origin to the point of consumption. Students will be required to write a report, in pairs, no longer than 10 pages in length (not including any appendices) related to a set of problems involving computational logistics, specifically vehicle routing and facility location. Note that students must work with a different person than who they worked with for the demand forecasting assignment.

**Details:** This assessment component will assess students' knowledge of computational logistics and optimisation. Students will need to demonstrate knowledge of these techniques by solving a number of transshipment and computational logistics problems. The assignment task is specifically designed to test student knowledge and comprehension of these forms of models. You will be required to undertake approximately 20 to 25 hours of working on the assignment questions outside of class times. Further instructions can be found on Blackboard. Students will be required to work in pairs. The report should be no longer than 10 pages in length, not including any appendices.

**Criteria:**

1. Demonstrate an understanding of vehicle routing methods and transshipment models;
2. Be able to apply numerous techniques, and explain why those techniques were chosen; and
3. Make suitable recommendations based on facts.

### 3.2. Referencing style and style guide

For this unit the referencing style is the Harvard Referencing Style. Students should download and adhere to the 'How to write a paper at the Institute of Transport and Logistics Studies' report available at [http://sydney.edu.au/business/itls/courses/transport\\_and\\_logistics/student\\_resources](http://sydney.edu.au/business/itls/courses/transport_and_logistics/student_resources).

### 3.3 Feedback on assessment

Feedback on assessments should be taken seriously to help you learn. In this unit you will receive the following types of feedback.

- Marks will be posted into the Blackboard Gradebook when all results for an assessment or exam have been compiled. Marks will not be given over the phone.
- Exam marks will be provided for every question and provided to you by email. General comments for each of the questions will then be posted on Blackboard.
- Each pair will receive individualized feedback on the assignments by email. These comments will broadly follow the structure of the marking criteria, plus an overall comment will be provided.
- If you would like further feedback on the assessment tasks, you are encouraged to ask the lecturer. This can be done in pairs or groups if you have similar issues to raise.

In addition to the feedback you receive on assessments noted above, you will also receive feedback from a number of sources that can help your learning. Feedback can come from:

- your peers during discussions or activities in timetabled tutorials and lectures
- your peers participating in online discussion board activities
- your peers during informal study group meetings, or group assignment meetings
- your lecturer during an arranged consultation, or in after-class discussions
- your lecturer via their comments on online discussion board activities
- yourself as you compare and reflect your thoughts and solutions with feedback. Don't underestimate the power of self-reflection in learning. Remember, knowledge is gained by constructing and building on previous knowledge, not simply memorising somebody else's answers. Self-reflection is a particularly great tool for turning a negative experience into a positive outcome.

### 3.4. Academic honesty, plagiarism, legitimate cooperation and groupwork

Commencing students should complete the academic honesty module available via Blackboard before their first assessment submission. Students should refer to Business School and University policies on academic dishonesty and plagiarism

([sydney.edu.au/business/currentstudents/student\\_information/student\\_administration\\_manual](http://sydney.edu.au/business/currentstudents/student_information/student_administration_manual)), copyright ([sydney.edu.au/senate/policies/Intellectual\\_Property\\_Rule.pdf](http://sydney.edu.au/senate/policies/Intellectual_Property_Rule.pdf)) and the 'All your own work website' ([sydney.edu.au/student\\_affairs/plagiarism\\_index.shtml](http://sydney.edu.au/student_affairs/plagiarism_index.shtml)) for information about legitimate cooperation, group work, how to reference correctly and how to avoid plagiarism.

Academic honesty is important to protect students' right to receive due credit for work submitted for assessment. It is clearly unfair for students to submit work for assessment that dishonestly represents the work of others as their own and gain marks and degrees, which are not based on their own efforts and abilities. Deliberate breaches of academic honesty constitute academic misconduct. These breaches include: plagiarism, fabrication of data, recycling previously submitted material, engaging someone else to complete an assessment on one's behalf and misconduct during supervised assessments.

The penalties for academic misconduct may include: a mark of zero on the assessment; a fail grade in the unit of study, additional assessment (including an unseen exam), and reference of the matter to the University Registrar.

All assessments will be checked for plagiarism. Where plagiarism is suspected, the assessment will be fully checked and monitored using manual process, Google checks and also electronic plagiarism detectors. In order to do this, the Business School may reproduce the assessment, provide a copy to another member of the Business School, and/or communicate a copy of this assignment to a plagiarism checking service (which may then retain a copy of the assignment on its database for the purpose of future plagiarism checking).

Academic dishonesty involves more than just copying material. Cooperation and helping other students may at times trigger academic dishonesty proceedings if it appears you have worked too closely with another student.

In this unit,

Assessment 1 is an individual exam.

Assessment 2 is a group assignment.

Assessment 3 is an individual exam.

Assessment 4 is an individual exam.

Assessment 5 is a group assignment.

Individual assignments must be written and prepared alone. You may consult with other students about ideas and possible research sources but the analysis and writing of the assignment must be done alone. Group assignments should be prepared within the group. Students should contribute fully to the group and take part in all group activities, contributing ideas, analysis and writing to the final product. While students within the group should assist each other freely, students should not carry this level of cooperation outside the group. One group may cooperate and help another group about ideas and possible research sources but the analysis and writing of the assignment must be done by the group alone.

## 4. Texts and other resources

None Required. All notes and readings will be made available to you via Blackboard.

## 5. University and Business School policies and support

### 5.1. Business School policies

Business School policies are contained in the Administration Manual for Students:  
[sydney.edu.au/business/currentstudents/student\\_information/student\\_administration\\_manual](http://sydney.edu.au/business/currentstudents/student_information/student_administration_manual).

It is crucial that you take the time to consult this manual early in your studies in order to familiarise yourself with policies and procedures relating to critical issues such as the Business School's policy on special consideration (including requirements and timelines. e.g. lodging applications five working days after a missed assessment), appeals (lodge within 15 working days of the decision) and other policies such as enrolment, credit etc. Assistance is available from the Business School's Student Information Office ([sydney.edu.au/business/student\\_information\\_office](http://sydney.edu.au/business/student_information_office)).

### 5.2. University policies

- **University policies:** [sydney.edu.au/policy](http://sydney.edu.au/policy)
- **Assistance** is available from the University's Student Centre:  
[sydney.edu.au/current\\_students/student\\_administration](http://sydney.edu.au/current_students/student_administration)
- **The code of conduct** is an important policy which outlines the University's expectations about treating all staff employees and students with respect, dignity, impartiality, courtesy and sensitivity and refrain from acts of discrimination, harassment or bullying:  
[sydney.edu.au/ab/policies/Student\\_code\\_conduct.pdf](http://sydney.edu.au/ab/policies/Student_code_conduct.pdf)

### 5.3. Student resources and services

Links to other student services and resources are included on Blackboard and on the learning and teaching section of the Business School website: [sydney.edu.au/business/learning](http://sydney.edu.au/business/learning)

## 6.

## 7. Continual improvement of the Unit

### 6.1 Past Feedback

Previous positive feedback centred on the usefulness and practical nature of the course, the timeliness and quality of the feedback, and the learning experiences of a number of the assessments. Some students however were concerned about one of the exams, and felt that it did not allow them to show the skills that they had learnt.

### 6.2 Improvements made

The assessment structure has been modified to address the concerns about the exam. Specifically, demand forecasting is now assessed through an assignment completed in pairs. There are many techniques that can be applied, and an assignment allows you to explore and test these techniques in much more depth, and so better demonstrate the skills that you have learnt. Also, more use will be made of the computer lab, to allow a hands on approach as the material is being taught.

### 6.3. How feedback will be collected

Your feedback on this unit of study will be collected via a Unit of Study Evaluation (USE) during the final lecture. Feedback will be used to make changes to improve the unit of study. Student representatives will also be used to provide informal feedback throughout the semester.

## 8. Topic schedule

Date		Topic	Class	Assessment Return Date
8 August	1	Introduction to course and logistics systems	Lecture – LT1	-
	2	Demand forecasting	Lecture – LT1	-
	3	Demand forecasting	Lecture – LT1	-
	4	Introduction to ERP and Odyssey2Go	Tutorial – CR2	-
22 August	1	Inventory management	Lecture – LT1	-
	2	Inventory management	Lecture – LT1	-
	3	Inventory management	Lecture – LT1	-
	4	Odyssey2Go: administration	Tutorial – CR2	-
5 September	1	<b>Inventory management exam 9am</b>	<b>Exam – CR2</b>	19 September
	2	Odyssey2Go: products	Tutorial – CR2	-
	3	Odyssey2Go: purchasing	Tutorial – CR2	-
	4	Odyssey2Go: purchasing and sales	Tutorial – CR2	-
12 September	-	<b>Demand forecasting assignment due 6pm</b>	-	26 September
19 September	1	Descriptive and evaluation techniques	Lecture – LT1	-
	2	Descriptive and evaluation techniques	Lecture – LT1	-
	3	Odyssey2Go: sales	Tutorial – CR2	-
	4	Odyssey2Go: distribution	Tutorial – CR2	-
17 October	1	<b>Descriptive and evaluation techniques exam 9am</b>	<b>Exam – CR2</b>	31 October
	2	Computational logistics	Lecture – LT1	-
	3	Computational logistics	Lecture – LT1	-
	4	Odyssey2Go: distribution and servicing	Tutorial – CR2	-
21 October	1	Odyssey2Go: revision	Tutorial – CR2	-
	2	<b>Odyssey2Go exam 11am</b>	<b>Exam – CR2</b>	4 November
	3	Computational logistics	Lecture – LT1	-
	4	Computational logistics	Lecture – LT1	-
4 November	-	<b>Optimisation techniques assignment due 6pm</b>	-	18 November