

**City and Regional Planning 775 / Civil Engineering 775**

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Credits: 4 hours  
Meeting: 195 Knowlton Hall  
Time: Monday, Wednesday 3:30–5:20.

Final Examination: Thursday, Dec 10, 3:30 pm, in 195 Knowlton. Bring a calculator.

Instructor's Office: 296 Knowlton Hall  
Office Hours: Tuesday, Thursday, 2:00–4:00 pm or by appointment  
E-mail: viton.1@osu.edu

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**Overview**

This is the second half of C&RP / CE 775, covering Trip Distribution and Mode Choice analysis.

**Required Work**

There will be two problem sets, one for Trip Distribution and one for Mode Choice; together they will count for 30% of the grade for this section of the course. There will be a Final Examination at the regularly scheduled time for the course ( Thursday, Dec 10, 3:30 pm, in 195 Knowlton. Bring a calculator. ): this will cover *only* the material in the second half of the course and will count for the remaining 70% of the section grade. As Prof Mishalani already explained, the final grade for the entire course is the unweighted average of the grades in his section and mine.

**Administrative**

As has already been announced, we shall not meet on November 26, the day before Thanksgiving; you can make your travel plans accordingly.

**Instructor's office hours; email**

Tuesday, Thursday 2:00 – 4:00 pm. If this is inconvenient, let me know and we can always set up a special appointment: the best way to arrange this is to send me email at viton.1@osu.edu. *Do not* leave a message

on my phone's voice-mail system: I tend to forget to check for messages.

There is one potential problem with email: I get lots of spam, and have set up a system to automatically filter mail and delete spam before it gets to me. However, there is always a chance that the system will incorrectly delete legitimate mail. I'll usually notice this, but it may not be right away. You can minimize the chances of something going wrong by (a) sending me mail from your OSU account and (b) including the text CRP somewhere in the subject line. Also note that messages with empty subject lines will almost certainly be deleted.

## Web Site

There is a small course web site at

<http://facweb.knowlton.ohio-state.edu/pviton/courses2/crp763>

It contains copies of all materials distributed during the second half of the course. It also contains a copy of this syllabus with *live* links to materials available electronically.

## Availability of Readings

There will be packets of readings for each part of this section of the course, available online at

<http://facweb.knowlton.ohio-state.edu/pviton/courses/crp775>

Note that this is not quite the same URL as given in the previous section. This is a restricted site, and you will need to use your Knowlton login to access it. KSA students should use the same ID they use to log onto the KSA network: if there are problems, try prefacing it with knowlton\ **CE students:** you should send email to Jeff Shaw (shaw.152@osu.edu) saying that you are enrolled in 775, and asking for a KSA login name and password. Please copy me on this email, and let me know if you have problems. Alternatively, bring a thumb drive to my office during office hours or immediately after class, and I'll copy the files to it.

## Readings for Trip Distribution

1. National Cooperative Highway Research Program. "Quick-response urban travel techniques and transferable parameters: User's guide". Technical Report 187, Transportation Research Board, 1978. Ch. 3. [PDF version](#)
2. John W. Dickey. *Metropolitan Transportation Planning*. McGraw-Hill Book Company, New York, N.Y., 2nd edition, 1983. Ch. 7.4
3. P. A. Viton, "Calibrating the Gravity Model". [PDF version](#)
4. Leonnie N. Duffus, Attahiru Sule Alfa, and Afifi H. Soliman. "The reliability of using the gravity model for forecasting trip distribution". *Transportation*, 14:175–192, 1987

## Readings for Mode Choice

1. John W. Dickey. *Metropolitan Transportation Planning*. McGraw-Hill Book Company, New York, N.Y., 2nd edition, 1983, pp. 210–221
2. T. Domencich and D. McFadden. *Urban Travel Demand: A Behavioral Analysis*. North-Holland, New York, 1975. Pages 47–80. [PDF Version](#)
3. P. A. Viton, “Notes on Mode Choice Models”. [PDF version](#)
4. Kenneth A. Small. *Urban Transportation Economics*. Harwood Academic Publishers, Chur, Switzerland, 1992. Pages 12–46

There are also two extremely good books on mode choice analysis available *free* over the internet.

- K. E. Train. *Qualitative Choice Analysis*. MIT Press, Cambridge, MA., 1986, available [here](#). This is a fairly basic treatment.
- Kenneth Train. *Discrete Choice Methods with Simulation*. Cambridge University Press, Cambridge, UK, 2002, available [here](#). This is more advanced, and covers some topics we will only touch on. It brings you to the forefront of current research topics in discrete choice analysis. Highly recommended.

Another very good book on mode choice analysis, including material we will not cover (stated choice experiments) is David A Hensher, John M Rose, and William H Greene. *Applied Choice Analysis: A Primer*. Cambridge University Press, Cambridge, 2005. It is available in the SEL.

## Software for Mode Choice

Most modern statistics packages can estimate the logit model, as we develop it in class. The package I generally use is Limdep, which is a general-purpose econometrics package. There is a student edition of this available from me: bring a thumb drive to my office and I’ll provide it for you. The student edition is limited in the size of datasets it can handle; but is otherwise just like the professional edition.

For more recent developments, like the mixed logit model, your choices are more limited. The professional edition of Limdep (called NLogit) can estimate these; but it is not free. I know of no implementation of mixed-logit in R (a very capable free general purpose statistics package), which is a bit of a surprise: if anyone knows differently please let me know. There are a couple of other single-purpose implementations of logit models including mixed logit, for example BIOGEME (by Michel Bierlaire) and AMLET. Do a Google search to find out where. AMLET requires installation of the (free) Cygwin Unix emulation system for Windows; neither is particularly straightforward to use, thought that may simply reflect unfamiliarity on my part. Prof. Akar in our department is a regular user of AMLET.

## **Other Transportation Courses**

If you are interested in urban transportation, you may be interested in my C&RP 774, offered in the Winter Quarter. Unlike 775, this is policy-oriented and not computational at all: we shall examine selected policy issues, including questions of investment and pricing of (urban) highways; the appropriate role of public transport in the urban economy; the contribution of privately-provided transit, and the evaluation of major mass transit projects like BART in San Francisco. No examinations: the only requirement is that you write a paper on some aspect of transportation (why or not it is covered in the course).