Bibliography/Model
(due Thursday, January 26, 2012, 9:30 am)

Goals:

(A) Goal (Now): As listed below your assignment is to have a useful list of references and a detailed model description. The references will be the references of your scientific paper(s) of the course. Use as guidance for your search of references: Main Goal is that you will know the **model** of your project precisely. For the example of the traffic flow it would mean that you know exactly all rules of how cars are put on the street, how they are moved further on the street and how their velocities are updated. Goal is that you know every detail of your model, so that you will be able to write the program for your model at the beginning of March.

Usually it is a long process to find the paper(s) which describe a simple enough model (for a one semester long instead of year long project) and to find paper(s) which are written clearly enough (the majority of papers are written for experts and are not always very pedagogical). You will have to jump from paper to paper, i.e. start with a list of papers you found via web of knowledge, scan the papers, check references therein and go from those references to the next set of papers, etc. This takes many days and sometimes weeks of work and that's why we dive into the bibliography already now.

(B) Goals (Later): As part of your first paper you will also describe the **background** for the model you will use for your project. In case of the traffic flow model this would mean that you find out (by finding and reading the appropriate references) which other traffic models have been studied (e.g. two lane, city grid, . . .) and what the main results are (including some theoretical and experimental results). You should become an expert in the topic of your project. You will find this information in scientific papers in a paragraph usually called "introduction" or "background" or "theory".

How to Read Papers:

To scan efficiently through the papers and to read more carefully through the papers, indicate on a copy of each paper: motivation, previous models, model/simulation, results. These keywords will help you to identify most important papers and to summarize all your findings for your papers.

How to Give Reference: (Examples; format as in APS journals)

Article: D. Chowdhury, L. Santen and A. Schadschneider, Curr. Sci. India **77**, 411 (1999).
Book: H. Gould and J. Tobochnik, *an Introduction to Computer Simulation Methods* (Addison Wesley, Reading, 1996).

Hand-In:

- references of at least five scientific papers which specify model & background of your project

- at least one book

- any further references, which are necessary to define your model precisely and which provide the information about previous work on the topic of your project

- hard-copy of paper(s) which describes best the model you will use (In case of a book being your major source, just make a copy of the appropriate page(s). In case you will develop your own model, then make copies of the appropriate references which identify the main parameters and known facts you will use.)

- Describe the model of your project with as complete set of rules as possible (one or more pages; clearly hand-written notes are fine)

Homework Assignment #2

(Thursday, January 26, 9:30 am)

2. Bibliography and Model as described in detail on the backside of this page.

- references of at least five scientific papers which specify model & background of your project

- at least one book

- any further references, which are necessary to define your model precisely and which provide the information about previous work on the topic of your project

- hard-copy of paper(s) which describes best the model you will use (In case of a book being your major source, just make a copy of the appropriate page(s). In case you will develop your own model, then make copies of the appropriate references which identify the main parameters and known facts you will use.)

- Describe the model of your project with as complete set of rules as possible (one or more pages; clearly hand-written notes are fine)

3. Comments: What of this assignment was most difficult and/or most interesting? Do you have any comments about last class and/or this course?