Projects for Computational Physics (2019)

1. Projects-Program Requirements:

A. Objective: You should emphasize on the algorithm(s) implementation and capabilities of your program.

B. Presentation/Poster: state clearly what your program is doing and shows us how. Discuss algorithm(s) and problem(s) to be solved.

C. Program: readable, clear input/output, executable.

D. Results: demonstrate your achievements, such as the advantage(s) of your program over other approach. They must be repeatable.

2. Important Dates:

May 6, Monday, by 23:00, select projects done

June 14, Friday, anytime
Draft of Project Report Hand In (report draft, program(s), etc.)

June 17, Monday, 15:30-16:15, 16:25-17:10, 18:00-18:45, 18:55-19:40, Presentation
Each presentation is 5 minutes; send ppt copy to TA before **13:30**;
Everyone should be there except approved leave.

June 18, Tuesday, 13:30-16:30, Poster
At least one of authors should present.
June 19, Wednesday, same as June 18

June 20, Thursday, anytime
Final Report sends to TA and Lin HQ.

June 30, final grade.

Report Outline:

1. Introduction
2. Problems to solve
3. Numerical algorithm(s) to be used
4. Results and Discussions
5. Conclusions and Outlook
6. References

Appendix: program with user notes

Professor Notes

Project Title: _____

_____

Students: _____

(A) Project Performance and Report (evaluated by the supervisor)

1. Program (30%):
   (a) Algorithm(s) implementation (25%)
   (b) Readable, clear input/output files (5%)

2. Results (20%):
   (a) (Demonstrate) achievements and capabilities (10%)
   (b) Analysis (10%)

(B) Presentation (50%, evaluated by the panel):

(a) State clearly what the program is doing and shows us how, discuss algorithm(s) and problem(s) to be solved. (30%)
(b) Enlightening and stimulating presentation (20%): Intelligent choice of suitable materials, clear description of the background, key contents, helpful examples, major advancements, and historical/current impacts, performance in questioning and answering.

Total Marks = Difficulty Level * (A) + (B)

General Remark: Outstanding/Excellent/Very Good/Good/Poor

Projects: from “An Introduction to Computer Simulation Methods, Applications to Physical Systems”, 3rd edition, Harvey Gould, Jan Tobochnik, and Wolfgang Christian

(textbook pages)

(*pdf pages*)

Difficulty Level 1 (11 topics, 1 topic for 1 group only)

Difficulty Level 2 (10 topics, 1 topic for no more than 2 groups)

Difficulty Level 3 (12 topics, 1 topic for no more than 2 groups)

Project-6.24	Page: 101-102
Project-6.26	Page: 102-103
Project-7.41	Page: 133
Project-8.24	Page: 161-162
Project-8.25	Page: 162
Project-15.32	Page: 333-334
Project-15.35	Page: 335-336
Project-15.36	Page: 336-337
Project-15.37	Page: 337-338
Project-15.42	Page: 340
Project-15.43	Page: 340
Project-15.44	Page: 340-341

Difficulty Level 4 (4 topics, 1 topic for no more than 2 groups)

Project-8.26	Page: 162-163
Project-10.26	Page: 213-214
Project-15.45	Page: 341
Project-15.46	Page: 341-342

Too Easy (save for someone really need)

Project-4.17(0.5)	Page: 62
Project-5.17(0.5)	Page: 78
Project-6.25(0.5)	Page: 102

2 students form a group