

Planning Probability Theory BIT and TCS – Module 4 (201300180) in 2016-2017

Lecturers: Dick (T.M.J.) Meijer, ZI 3035, tel. (053-489)3382, T.M.J.Meijer@UTwente.nl - Group 2 (SP 5)
 Judith Timmer, ZI 4009, j.b.timmer@utwente.nl - Group 1 (SP 4)

This course consists of combined tutorials (first hour) and lectures (second hour) in two parallel groups. During the tutorial hour the lecturer and student-assistants Casper or Jedidja are available to answer your questions.

Material: Reader “Probability Theory for Engineers”, available at the Unionshop (no. 642) and info on BB.

Planning of Tutorials + Lectures (check out My timetable for unexpected changes)

Wk		Day/time	Solve at home	Tutorial Exercises	Reader	HomeWork Ass.
17	1	24/4 Mo 6+7		2 hours lecture!	Ch1+2	
	2	28/4 Fr 6+7	Ch1: 1-4, Ch2: 1	Ch1: 5-8, Ch2: 2-4	Ch3.2	
18	3	1/5 Mo 6+7	Ch2: 5, Ch3: 1	Ch2: 6-10, Ch3: 2-4	Ch3.3	
	4	4/5 Th 6+7	Ch3: 12	Ch3: 5-11	Ch4.4	
19	5	8/5 Mo 6+7	Ch4: 1	Ch4: 2-5, 10, 15	Ch4.5	Hand in HWA 1
	6	11/5 Th 6+7	Ch4: 6, 7	Ch4: 8, 9, 11-14, 16	Ch5.2 (part)	
20	7	15/5 Mo 6+7	Ch5: 1	Ch5: 2-4	Ch5.4	Hand in HWA 2
	8	18/5 Th 6+7	Ch5: 5	Ch5: 6-9	Ch5.6	
21	9	22/5 Mo 6+7	Ch5: 10	Ch5: 11-15	Ch6.2 (part)	
22	10	29/5 Mo 6+7	Ch6: 1	Ch6: 2-4	Ch6.4	Hand in HWA 3
	11	1/6 Th 6+7	Ch6: 6	Ch6: 5, 7, 11	Ch6 +part 7.3	
23	12	6/6 Tu 3+4	Ch6: 8	Ch6: 9-10, Ch7: 1,6	Ch7.3	Hand in HWA 4
	13	8/6 Th 3+4	Ch7: 2, 3, 5	2 hours lecture!	Ch7.4, Ch8	
24	14	12/6 Mo 6+7	Ch7: 12, Ch8: 1	(2 hours tutorial!) Ch7: 7-11 Ch8: 2-5		
24		15/6 Th 6+7	Q&A, example test			
25		20/6 Tuesday 8.45-11.00 h. in Therm:	Test Probability Theory			
27		3/7 Monday 13.45-16.00 h:	resit Probability Theory			

The **homework assignments** are **not mandatory**, but strongly advised: it increases your success rate, if you actively participate in the course. Hand in the HWA's before the lecture starts as indicated in the time schedule above. If your test result is at least 5.0, the HWA-results will be taken into account: then each **HWA grade greater than the test result** is counted for 5% in the final result: participation is stimulated without a risk.

At the tests (and the tutorials) a **simple scientific calculator** is allowed (not a graphical one with memory for formulas). The following formula sheet and, if needed, the probability tables in the reader are added to the tests:

Formula sheet Probability Theory for BIT and TCS in module 4

Distribution	$E(X)$	$var(X)$
Geometric	$\frac{1}{p}$	$\frac{1-p}{p^2}$
Hypergeometric	$n \cdot \frac{R}{N}$	$n \cdot \frac{R}{N} \cdot \frac{N-R}{N} \cdot \frac{N-n}{N-1}$
Poisson $P(X = x) = \frac{\mu^x e^{-\mu}}{x!}, x = 0, 1, 2, \dots$	μ	μ
Uniform on (a, b)	$\frac{a+b}{2}$	$\frac{(b-a)^2}{12}$
Exponential	$\frac{1}{\lambda}$	$\frac{1}{\lambda^2}$
Erlang $f_X(x) = \frac{\lambda(\lambda x)^{n-1} e^{-\lambda x}}{(n-1)!}, x \geq 0$	$\frac{n}{\lambda}$	$\frac{n}{\lambda^2}$

$$var\left(\sum_{i=1}^n X_i\right) = \sum_{i=1}^n var(X_i) + \sum_{i \neq j} cov(X_i, X_j)$$