

Honours in Physics 2017

[Document version: 16 January 2017]

A. General information

Honours students, please take note of the following points:

- **Honours projects** comprise **one quarter** of your degree! **Start early.**
- The main tests for the honours course are scheduled to occur in lecture-free weeks. Due to the many constraints upon the course, renegotiation of the test dates is not an option.
- We give a list of modules you should take in each module. We do our best to check this, but the ultimate source is the University Calendar, and we urge you to check against this in all cases.
- You should attend, where possible, all colloquia as announced, scheduled for Tuesdays at 12:00. If your schedule permits, are encouraged to attend the regular group talks of the various research groups. We shall be adding you to e-mail lists.
- The Faculty of Science has an obligatory information session on **31 January 2016, at starting 10:00**. This will be a lecture-free day for you. Further information not available at this point.

Course coordinator: Kristian Müller-Nedebock, kkmn@sun.ac.za, Room 1027, (021) 8083386 – or ask an administrator to phone me.

B. Overview for the year

	Weeks	Special dates
Lectures (L1)	Mon. 23 Jan. – Fri. 17 Mar. (8 weeks)	The first week has a separate schedule! Obligatory Faculty Post-Graduate 31 Jan. (no honours Lectures); 15-17 Mar. LECTURE FREE for student preparation for test week.
Test Week (T1)	Mon. 20 Mar. – Fri. 24 Mar.	Public Holiday 21 Mar.
Lectures (L2)	Mon. 27 Mar. – Fri. 7 Apr. (2 weeks)	
University Break	9 Apr. – Mon. 17 Apr.	Public holidays 14 & 17 Apr.
Lectures (L2) continue	Tue 18 Apr. – Fri. 19 May (5 weeks)	Public holidays 27 Apr. & 1 May; Wed. 3 May is MONDAY schedule
Tests (T2)	Mon. 22 May – Fri. 2 Jun.	Public holiday 16 Jun.
University Break	Mid-year break	
Lectures (L3)	Mon. 17 Jul. – Fri. 1 Sep. (7 weeks)	Public holiday 9 Aug.
University Break	3 Sep. – 10 Sep.	
Test Week (T3)	Mon. 11 Sep. – Fri. 15 Sep.	Public holiday 24 Sep.
Lectures (L4)	Mon. 18 Sep. – Fri. 3 Nov. (7 weeks)	Public holiday 25 Sep; Fri. 29 Sep. is MONDAY schedule; 1 Nov. honours project SUBMISSION
Tests (T4)	Mon. 6 Nov. – Fri. 18 Nov.	

Key dates for students:

- 23 Jan., 10:00 report to Ms Christine Ruperti (office) concerning administrative arrangements, 11:30 introduction to the Departmental Library by Ms Colleen April (Departmental Library)
- 24 Jan., formal start of honours lectures with four days of mathematical methods, term 1
- Department of Physics post-graduate session is also planned for 12:00 on 7 February. The time and venue will be announced.
- Obligatory Faculty of Science workshop for new postgraduates: 31 January.
- 17 Mar., **DEADLINE** for **honours project choice** (for theorists, the literature survey part)
- 17 Jul., **DEADLINE interim honours project report** (for theorists finalisation of literature survey)
- 1 Nov., **DEADLINE** for **honours project submission**

Key dates for lecturers:

- 9 Mar., **DEADLINE** submission of tests for moderation (1st term), as appropriate
- 17 Mar., all students should have made choices of honours project; DEADLINE for project proposal to research committee
- 4 May, **DEADLINE** submission of tests for moderation (2nd term), as appropriate
- Final marks (1st semester)
- 31 Aug., **DEADLINE** submission of tests for moderation (3rd term), as appropriate
- 20 Oct., **DEADLINE** submission of tests for moderation (4th term), as appropriate
- 1 Nov., **DEADLINE** for honours project submission
- Final marks (2nd semester)

B. Course overview

Module code	Name	Lecturer	Honours specialisation				Term & credits			
			Lasers	Nuclear	Health	Theory	1	2	3	4
711	Electromagnetism	Prof. H. Touchette	X	X	X	X	8			
712	Lagrangian and Hamiltonian mechanics	Prof. B.I.S. van der Ventel	X	X	X	X	8			
713	Solid state physics	Dr F. Cinti	X	X	X	X		8		
714	Quantum mechanics B	Dr J.N. Kriel	X	X	X	X	8	8		
716	Atomic physics	Dr H. Uys	X		X				8	
718	Radiation interaction	Prof. R.T. Newman			X				8	
719	Quantum mechanics C	Prof. H.C. Eggers		X		X		8		
721	Statistical physics B	Prof. K.K. Müller-Nedebock		X		X		8	8	
741	Physics project		X	X	X	X		8	12	12
744	Spectrophysics	Prof. E.G. Rohwer & Dr. G. Bosman	X							8
745	Quantum optics and laser techniques	Prof. E.G. Rohwer & Dr. G. Bosman	X						8	8
747	Molecular physics	Dr J.N. Kriel	X						8	
748	Nuclear reactions and structures	Prof. S.M. Wyngaardt		X	X				8	
750	Physics of radiations dosimetry/radiology	@Tygerberg			X				4	4
751	Physics of nuclear medicine	@Tygerberg			X				4	4
752	Physics of radiotherapy	@Tygerberg			X				4	4
753	Radiation protection	@iThemba			X					8
754	Many-body physics	Prof. M. Kastner		X		X				8
755	Relativistic quantum mechanics and quantum field theory	Prof. H. Weigel		X		X			8	8
757	Entropy and Information	Prof. H.C. Eggers				X	5.66	2.34		
772	Optics	Dr G. Bosman & Dr H. Uys	X					8		8

Not offered in 2017: 758 (Dynamical systems & complexity)

Note: 754 (Many-body theory) is a prerequisite for new MSc students in theoretical physics as part of their coursework.

C. Detailed weekly lecture schedules

WEEK 1	Monday 23 Jan.	Tuesday 24 Jan.	Wednesday 25 Jan.	Thursday 26 Jan.	Friday 27 Jan.
08:00					
09:00		Mathematical Methods – CM (B.I.S. van der Ventel)	Mathematical Methods – QMB (H. Kriel)		Mathematical Methods – EM (H. Touchette)
10:00	Report to Ms C. Ruperti	Mathematical Methods – CM (B.I.S. van der Ventel)	Mathematical Methods – QMB (H. Kriel)	Mathematical Methods – QMB (H. Kriel)	Mathematical Methods – EM (H. Touchette)
11:00	From 11:30 - admin. Tasks, Library info. (Ms April, Ms Theron)	LRI Meeting			
12:00		Colloquium	Mathematical Methods – E&I (H. Eggers)	Mathematical Methods – QMB (H. Kriel)	Mathematical Methods – E&I (H. Eggers)
14:00		MM homework	MM homework	MM homework	MM homework

Term 1 From 30 Jan. onwards	Monday	Tuesday	Wednesday	Thursday	Friday
08:00	P711 EM		P714 QMB	P757 E&I	
09:00	P711 EM	P712 Cl.M.		P757 E&I	P712 Cl.M.
10:00		P712 Cl.M.	P712 Cl.M.		
11:00	P714 QMB	LRI Meeting		P711 EM	P714 QMB
12:00	P714 QMB	Colloquium	P711 EM		P757 E&I
14:00	P711 tut.	[Nucl.Ph. Prac.(*)]	P714 tut.	P757 tut. (2/3)	P712 tut.

Term 2	Monday	Tuesday	Wednesday	Thursday	Friday
08:00	P714 QMB	P719 QMC	P714 QMB		P721 SP &772 Op
09:00	P714 QMB	P719 QMC	P713 SSP	P719 QMC	P714 QMB
10:00		P721 SP &772 Op			
11:00		LRI Meeting	P721 SP &772 Op	P719 QMC	P721 SP &772 Op
12:00	P757 E&I	Colloquium	P713 SSP	P713 SSP	P713 SSP
14:00	P713 tut.	P719 tut.	P714 tut.	P721&772 tut.	P757 tut. (1/3) and Nucl. Ph. Prac.(**) (2/3)

(*) Consult Prof. P. Papka (**) Consult Professors P. Papka and H. Eggers

To be confirmed at a later stage: Schedules for Terms 3 & 4

D. Test schedules

D.1 Test week starting 20 March

	Mon. 20 Mar.	Wed. 22 Mar.	Thu. 23 Mar.	Fri. 24 Mar.
10:00	P714	P712	P721 orals	P711
14:00			P721 orals	

D.2 Test weeks starting 22 May

	22 May	23 May	24 May	25 May	26 May
10:00		P714			P721 orals & P772
14:00					P721 orals
	29 May	30 May	31 May	1 Jun.	2 Jun.
10:00	P719		P713		P757
14:00					

D.3 Test week starting 12 September: TBC

	11 Sept.	12 Sept.	13 Sept.	14 Sept.	15 Sept.
10:00	P745 & P755		P716 & P718		P747 & P748
14:00					

D.4 Test weeks starting 7 November: TBC

	6 Nov.	7 Nov.	8 Nov.	9 Nov.	10 Nov.
10:00		P744	P753	P755	P772
14:00					
	13 Nov.	14 Nov.	15 Nov.	16 Nov.	17 Nov.
10:00		P745 & P 754		Project orals	
14:00				Project orals	