

MINUTES OF THE PHYSICS & ASTRONOMY ARTICULATION MEETING

MAY 1st, 2009

Thompson Rivers University (TRU) – Panorama Room

In attendance:

Name	Institution	email	Phone #
Ernest Tsui	TRU	etsui@tru.ca	250-828-5408
Mark Paetkau	TRU	mpaetkau@tru.ca	250-828-5453
Normand Fortier	TRU	nfortier@tru.ca	250-828-5404
Helena Higgs	NIC	higgs@nic.bc.ca	250-334-5040
Laura Markel	Yukon College	laura.markle@yesnet.yk.ca	867-667-8044
Joanne Rosvick	TRU	jrosvick@tru.ca	250-828-5409
Norm Taylor	UFV	norm.taylor@ufv.ca	604-504-7441 (X 4225)
Tom McMath	KPU	tom.mcmath@kwantlen.ca	604-599-2203
Richard Christie	OC	rchristie@okanagan.bc.ca	250-762-5445 (X 4484)
Barbara Rudecki	CNC	rudecki@cnc.bc.ca	250-562-2131 (X 5670)
Vlandan Jovovic	Columbia College	vjovovic@columbiacollege.bc.ca	604-683-8360
Eric Turner	NWCC	eturner@nwcc.bc.ca	250-635-6511 (X 5253)
Per Joensen	Selkirk College	pjoensen@selkirk.ca	250-365-7292 (X 475)
Ross Bates	Selkirk College	rbates@selkirk.ca	250-365-7292 (X 468)
Ed Nelson	Camosun College	nelson@camosun.bc.ca	250-370-3515
James Brewer	BCIT	jbrewer@bcit.ca	
Mahmood Ziaei	NLC	mziaei@nlc.bc.ca	250-785-6981 (X 2021)
Robin Macqueen	Langara College	rmacqueen@langara.bc.ca	604-323-5367
Greg Arkos	VIU	gregory.arkos@viu.ca	250-753-3245 (X 2207)
Dan Murray	UBC-O	Daniel.murray@ubc.ca	250-807-9513

Janusz Chrzanowski	Coquitlam College	janusz@coquitlamcollege.com	604-980-6633
Michael Hasinoff	UBC-V	hasinoff@physics.ubc.ca	604-822-2360
Jennifer Kirkey	Douglas College	Kirkeyj@douglas.bc.ca	604-527-5232
Matt Reid	UNBC	mreid@unbc.ca	250-960-6622
Richard Hewko	COTR		250-426-3672
Jim Bailey	COTR	bailey@COTR.bc.net	250-489-2751
Barbara Frisken	SFU	frisken@sfu.ca	778-782-5767
Arnold Sikkema	TWU	Arnold.sikkema@twu.ca	604-513-2121(X3185)
Arthur Watton	UVIC	awatton@uvic.ca	250-721-7703
Mike Freeman	Capilano U	mfreeman@capilanou.ca	604-986-1911 (X 2440)
Stan Greenspoon	Capilano U	sgreensp@capilanou.ca	604-986-1911 (X 2439)

Minutes

The meeting was called to order at 9:30 a.m. by the chair, Stan Greenspoon

Tom Dickinson, Dean of the Faculty of Science at TRU welcomed the articulation committee members to TRU.

Publishers' representatives were thanked for their companies' contributions towards funding the coffee and refreshments available to the members of the committee.

1. The members in attendance introduced themselves
2. Approval of the agenda as published was moved by Mike Hasinoff (UBC-V) and seconded by Tom McMath (Kwantlen) and was passed unanimously.
3. Approval of the minutes of the 2008 Articulation Committee Meeting as published online was moved by Helena Higgs (NIC) and seconded by Matt Reid (UNBC) and was passed unanimously.
4. Stan Greenspoon notified members that corrections and changes to Textbook Lists/Articulation Charts should be sent to him at sgreensp@capilanou.ca.
5. The next Physics & Astronomy Articulation Committee meeting will take place on Friday, May 7, 2010 at Langara College. The Engineering Articulation Committee meeting is scheduled to take place at UFV on Thursday May 6, 2010.

Tom McMath (KPU) will consult with Peter Mulhern of UFV regarding whether or not the Engineering Articulation Committee meeting should stay at UFV or be moved to Langara for the convenience of persons from outside the Lower Mainland who are members of both committees.

6. Stan Greenspoon, Chair of the Physics & Astronomy Articulation Committee thanked Ann McArthur, who is retiring from BCIT, for her past service as System Liaison Person (SLP) for the Physics & Astronomy Articulation Committee. Stan asked whether or not committee members felt that an SLP was needed. Tom McMath (KPU) spoke in favor of the need for an SLP, “as someone who could speak as an instructor as well as an administrator”. Please send your suggestions for SLPs to Stan.
7. **Round Table discussions of significant curriculum changes and associated issues**
 - a. NIC– see submitted report in “Reports” section below. The addition of two new first-year engineering courses (linear algebra and engineering mechanics) will enable the offering of the first-year engineering transfer program. The program will be offered at the Courtenay campus and delivered by ITV at two others. A local tutor will facilitate the delivery of the program. Various recruitment activities have been started in an effort to bolster enrolments.
 - b. UBC-O – see submitted report in “Reports” section below .
 - c. NLC – see submitted report in “Reports” section below. Geomatics engineering in collaboration with BCIT will be offered starting in September 2009. Students complete the first year of the program at NLC and the second year of the program at BCIT. The new program will require the offering of new algebra-based physics course at NLC. It is anticipated that the enrolment for the new program will be around 16 students
 - d. Capilano U. – see submitted report in “Reports” section below. Still unable to offer second year courses despite university status. The number of hours of instructions has now been reduced. Courses that used to be taught as 2 x 2 hours per week are now taught as 2 x 1.5 hours per week. [Kwantlen faces similar pressures]. This reduction of hours of instruction was introduced to enable the time-tabling of new courses. Mastering of Physics is used with positive results. The learning curve is not too onerous for the students. [Mike Hasinoff reported that UBC is also using it. They have observed a huge improvement in the quality of the software. Weak students in particular appear to like it]. [Tom Mcmath reported that Kwantlen is also pleased with Mastering of Physics. Again it appears that the weak students are benefitting from the approach – it was speculated that they may be doing more homework than they would be doing otherwise].
 - e. NWCC – see submitted report in “Reports” section below. No second-year physics courses are offered. An algebra and a calculus based physics courses are offered during

the fall semester. However, this is followed only by a calculus based physics course during the winter semester. Eric Turner wanted to know if we could cause transfer problems. None was mentioned by committee members.

- f. Langara College – see submitted report in “Reports” section below. Strong enrolment for the summer session in Physics courses. This may be attributed to the fact that UBC does not offer first-year physics courses this summer because of renovation to its laboratories. For the third year in a row, Langara has not been able to run second-year physics courses. Langara tried to offer second-year courses in collaboration with the Richmond campus of KPU. However KPU was unable to offer their second-year courses due to a lack of funding. Langara will try to offer second-year courses during the academic year 2009-2010.
- g. BCIT – see submitted report in “Reports” section below .
- h. TWU – see submitted report in “Reports” section below. TWU is now offering a first-year astronomy course on alternate years. Student numbers in upper-level courses are low and there is pressure the cancel them.
- i. UFV - see submitted report in “Reports” section below. The number of students in second-year courses ranges from 10-15 students. This year 6 students are graduating with a major, 1 with an honours, and 1 with a minor. First-year enrolments were up. Second-year enrolments are stable. Upper-level enrolments have dropped.
- j. Kwantlen – see submitted report in “Reports” section below. Enrolments in physics and math have declined, particularly on the Richmond Campus. Students are registering later every year and this is causing the cancellation of lab sections that would have run otherwise. [Douglas has observed a similar effect; Langara has not]. KPU is considering revising Phys 1101 and reintroducing Phys 1102 for the life-science stream: The goal will be to de-emphasize the mechanics and E&M while bolstering the content of wave, optics, fluid, and heat.
- k. Yukon College - see submitted report in “Reports” section below. It was suggested by the articulation committee that if only one stream of physics courses can be offered, it should be the calculus-based one.
- l. SFU –see submitted report in “Reports” section below. A custom calculus-based version of Giancoli is now used for the life science stream. Student numbers in second-year and upper-level courses are good. Approximately 20 students are graduating in physics each year. Very few students transfer into second-year from the college system.
- m. Okanagan College – see submitted report in “Reports” section below. Second-year courses are still in place but enrolments are low. There is a fear that they could

eventually be cancelled. The same second-year courses will be offered next year. Student numbers in technology programs at OC are up.

- n. Vancouver Island University –see submitted report in “Reports” section below. First-year numbers are stable. May be running second-year courses for the last time next year. Four courses in astronomy are being offered and enrolment is very good.
- o. Columbia College – see submitted report in “Reports” section below. 3 Physics courses are offered at the UT level. Enrolment is stable.
- p. TRU – see submitted report in “Reports” section below.
- q. Douglas College - see submitted report in “Reports” section below. Steady enrolment observed at the institution. Steady numbers in Physics as well.
- r. Selkirk College - see submitted report in “Reports” section below. No change to the course offerings. Algebra and calculus-based streams are offered. Second-year enrolments are very low, 1 – 3 students.
- s. Coquitlam College - see submitted report in “Reports” section below. No change to report. Stable enrolment.
- t. CNC- see submitted report in “Reports” section below. The engineering static course was almost cancelled last year due to low enrollments. This year, 18 students were registered. A new program in Radiology will start next year at CNC. The program will require a new course in Physics.
- u. Camosun- see submitted report in “Reports” section below . A new Dean of Science and a new President are in place. Budget has been reduced by 3 %. One retirement occurred this year in Physics. The position was not replaced. AP physics is still offered in collaboration with a local high school. The program is very successful. 24 students were in it. Engineering programming is expanding.
- v. UNBC- see submitted report in “Reports” section below. Enrolments increased by 3 % at the institution. 14 % increased in Physics. Second-year Physics courses are up 30 %.
- w. UVIC- see submitted report in “Reports” section below. Increased in enrolment of 6 %. Algebra-based physics course is offered again during the summer. The course is offered during the evening as dictated by the demand. First-year course in mechanics will be modified. A new course (to be offered during the spring semester) is being developed and will cover waves and modern physics. The second-year course in mechanics will also be modified to take into consideration the changes to the first-year course.
- x. COTR- see submitted report in “Reports” section below. Continue to successfully team teach Math and Physics. 28 students registered in the fall semester. 21 registered in the

winter semester. Astronomy course is full. It satisfies a lab science requirement for students in Arts. 3 students were registered in the second-year mechanic course.

- y. UBC- V- see submitted report in “Reports” section below. Phys 101 and 102 are cancelled this summer. Labs being renovated to accommodate Studio Physics. Enrolments in first-year physics are flat. Astronomy courses are doing quite well. Phys 216, Intermediate Mechanics has been moved into third year and will become a more advanced course.
8. No new items were suggested for the afternoon session
 9. Web-based and remote delivery of labs (Ron Evans (NIC & BCcampus). The following motion was passed by the Articulation Committee (with one abstention) following a presentation by Ron Evans:

"The BC Physics & Astronomy Articulation Committee recognizes the importance of developing criteria to evaluate remote and web-based laboratory portions of science courses for articulation purposes and thus supports the BCcampus applied research project “Articulation and Transfer of Remote and Web-Based Science Lab Curriculum”.
 10. On behalf of the BCCAT, Stan advised members to take recommended actions regarding pending articulation requests, as outlined on BCCAT documents previously e-mailed to them.
 11. Online versions of textbooks (Tom McMath, Kwantlen). Mike Hasinoff (UBC-V) told the group that his students were surveyed regarding online texts. Their preference was for the soft- cover versions of the texts.
 12. Open Source Textbook Proposal (Robin Macqueen, Langara). Robin circulated a sign-up sheet for anyone interested in contributing to the creation of an open source textbook.

Members were reminded of the BCAPT meeting, to be held the following day, Saturday, May 1st .

Adjournment at 4:00 p.m.

Reports

North Island College (NIC)

North Island College has struggled with first year enrollments for the past few years. In an effort to boost enrollments in physics and also enhance our other science enrollments we have added two new courses to our offerings.

Matrix algebra and mechanics - engineering statics will allow us to offer a first year engineering transfer program at our Courtenay campus. We have met with the engineering faculty at University of Victoria and at Vancouver Island University and set up programs that will transfer to these two island institutions.

We are also doing some local recruiting by hosting a science experience day. We have local high school students coming on campus to do a series of fun science activities. Our art department has done this for the past two years and it has been very successful in attracting future students.

Helena Higgs
North island College

University of British Columbia - Okanagan (UBC-O)

For PHYS 112 (algebra-based), the actual stable enrolment in 08/09 was 186, and the number of seats to be released for 09/10 is unchanged at 234.

For PHYS 111 (calculus-based), the actual stable enrolment in 08/09 was 160, and the number of seats to be released for 09/10 is unchanged at 180.

For ASTR 11x (all versions of 1st-semester Astronomy), the stable enrolment in 08/09 was 91, and the number of seats to be released for 09/10 is unchanged at 120.

Second-year enrolments for 08/09 varied by course from 6 (?) to 24. No curriculum changes are planned at the 2nd-yr level for the upcoming year, but prerequisites have been strengthened for 200-level courses to plug loopholes in the calendar.

Upper-level enrolments for 08/09 varied by course from 6 (?) to 20.

Curriculum developments at the upper-division level:

- (a) A new 400-level course in General Relativity is planned to be introduced in 09/10.
- (b) A second upper-level Astrophysics course is to be offered in 09/10 as a sequel to a first such course introduced in 08/09.
- (c) Prerequisites have been strengthened for several upper-level courses.

Graduation statistics: There are two Physics Honours, one Physics Major, and two Physics Minor students expected to graduate this spring.

Graduate students: There are two students currently enrolled in the Interdisciplinary Graduate Studies program, and one additional student starting this summer.

Northern Lights College (NLC)

1. No major changes.
2. Enrollments were strong this past academic year.
3. Calculus based physics was offered only.
4. Textbook used: Halliday/Resnick/Walker Fundamentals of Physics, 7th ed.

New Development:

5. Northern Lights College and BCIT will offer a joint Geomatics Engineering Technology 2-year diploma program starting September of 2009. As a result NLC will include Algebra based Physics in its offerings again as of September 2009. The textbook "College Physics" by Serway/Vuille/Faughn 8th ed. will be used. For more information please call: 1866 463 6652

Capilano University

For the third consecutive year, we have been unable to offer 2nd year courses. Our new status (University) has not changed this.

The biggest change this year has been to our schedule, requiring courses be taught in 2 x 1.5 hours weekly, instead of 2 x 2.0 hours. This has caused us to reduce the number of examples done in class, and to look hard at eliminating unnecessary small topics.

Faculty were required to supply something extra to make up for the missing hour. We have experimented with short, on-line, multiple choice questions (using Moodle or Mastering Physics) based on reading ahead, and with providing extra solutions of sample problems.

Our enrolments were up from their low values in 2007-2008, with strong demand for the Engineering program. Demand for Astronomy has held up, though not for the version of the course with lab.

Performance of students entering the calculus-based stream can only be described as dismal, particularly for students starting in January.

Northwest Community College (NWCC)

- Using in house notes and reference text books for Physics 121/122 (calculus based) and Physics 101 (algebra based) in Terrace.
- Enrolments are marginally up in Terrace and down in Prince Rupert.
- In Terrace, and due to enrollment issues, we are offering one section of our algebra based course (Physics 101) and one section of our calculus based course (Physics 121) in the fall but

only one section of the calculus based course (Physics 122) in the winter. Thus some students will have the calculus based pair, Physics 121/122, and some the mixture of the algebra and calculus courses to for the pair Physics 101/122. Hopefully this will not cause any transfer problems.

Langara College

Enrolments are strengthening again: in January, the active student headcount college-wide was up 6% over the previous year; this summer term (May—Aug) the active student headcount is up by 16% over last summer. We are running six physics sections this summer, and all but one are full, with waitlists of over 10 students. Part of our increase this summer is certainly due to the fact that UBC is not running first-year physics courses this summer due to a lab renovation.

We offered the same number of course sections during 2008-09 as in previous years. We continued to run astronomy courses in pairwise fashion, with 3 common and one distinct hour per week, and common lab: ASTR 1101/3310 in Fall, ASTR 1102/3311 in spring.

We ran no 2nd-year courses in 2008-09, for the third year in a row. However, survey results this year have convinced us to try offering second-year courses again in 2009-10 (subject to sufficient enrolment). We plan to offer Relativity & Quanta and the lab course Intermediate Experimental Physics I in Fall 2009. If we get close to ten students, we will then offer Newtonian Mechanics and Intermediate Experimental Physics II in Spring.

British Columbia Institute of Technology (BCIT)

The Physics department at BCIT has 12 full time faculty, and teaches around 1000 students in 22 different technologies.

The Civil Engineering program now offers an option to transfer to a degree program, and as such the physics courses (P1192 & P2192) delivered to this technology are now calculus based (all students, diploma and degree, must take these 2 courses). Given this, there is now a grade 12 Physics prerequisite for entry into the Civil engineering program, and a calculus based first year university level physics course is required to receive exemption from these courses.

Starting this year, degree programs will also be offered in Electrical Engineering and Mechanical Engineering. A potential exists for some higher level courses to be taught into these programs.

We continue to offer one section of Physics 1110 in the fall term and Physics 2100 in the winter term. Math 1110 Calculus 1, and Math 2100 Calculus 2 are the respective co-requisites. The text used is Giancoli's *Physics for Scientists and Engineers*.

These courses along with first year Biology, Chemistry, and English are part of the Degree Transfer in Science and Technology (DTST) program. DTST was developed to provide first year university prerequisites, required to pursue degrees in health technologies such as Radiation Therapy, Nuclear Medicine, and Medical Radiography. With the exception of Radiation Therapy, these degree programs are on hold due to government policy.

Trinity Western University (TWU)

- We are offering, for the first time at TWU, an astronomy course. It's stellar and galactic astronomy (Phys 215), and is targeted to the general student. The course is already fully subscribed (24 students).
 - We have moved from an annual offering of our popular conceptual modern physics course to alternating it with this astronomy course. Students can use one of these, but not both, for the minor or concentration. Both courses are fully subscribed.
 - We had only four students in our alternate-year E&M course (Physics 230), and five in our alternate-year Modern Physics course (Physics 310).
 - First-year calculus-based physics sequence (Physics 111-112)
 - Enrolment in our first-year calculus-based physics sequence was back to normal at 58 & 40 [dropped significantly to 23 & 15 in 2007-08 to [from 58 & 42 (2005-06) to 51 & 37 (2006-07)].
 - The failure rate was 8% (it was 3% in 2007-08 and 11-15% in 2005-07).
 - Our club for students in the Mathematical Sciences Department which started last year only had one meeting during 2008-09. Students seem interested, but don't have the drive to co-organize meetings.
-

University of the Fraser Valley (UFV)

- This year we have 6 graduates, 4 Majors, 1 Honours, and a Minor. This is down from our record high of last year (10 grads). Overall, our college prep and first-year enrolments were up, especially in college prep and astronomy (50%+). Our degree stream calculus-based courses were up only slightly, however (9%). Our second-year enrolments held roughly steady, and our third and fourth-year enrolments fell significantly once again (partly, we think, due to the large number of grads last year), although still averaging over 10 students per course.
- We are thinking of revamping our second-year E&M course, PHYS 222. Instead of an integrated lab and lecture, the E&M part would be spun off into a lecture-only course (4 hours), and the electronics part would be put into a separate 3-4 hour (1-2 hours lecture, 2-3 hours lab) course. We are also planning to revamp the first-year, second-semester algebra-based physics course (PHYS 105).

- Tim Cooper is still giving his global warming talks around the Fraser Valley, but he is more than willing to travel further afield if there is interest. Finally, in an effort to become free from oversight by DQAB, UFV has instituted a policy of regular program reviews. We are one of the first “academic units” to go through it, and we are searching for volunteers to be members of the external review committee.

Kwantlen Polytechnic University (KPU)

- Once again our enrollments in physics and math showed a decline, particularly at our Richmond campus. A compounding feature was that a significant fraction of students did not bother to register until the day before classes started; and several lab sections had been dropped by that time. These students had to scramble to get into all their courses -- most did in the end but with rather awkward timetables, sometimes including inter-campus travel. Somehow this was seen as our fault.
- We will be continuing with the same texts, and with the on-line homework component (which will be extended to our Phys 1100, so we get to try Wiley’s version). There are some obvious signs of cheating and collaboration – difficult assignments completed in rather short times by rather weak students – but that happens with any form of homework, and we feel that 5% to 10% of final grade for this component is still a good compromise. We will look to increase the fraction of random number problems, but these aren’t always our favourites.
- We are looking at revising our Phys 1101 and restoring our Phys 1102, and making them into a more clearly differentiated life science stream. We believe we can do this within the current course descriptions; reducing the mechanics component and the toughest EM parts, increasing the discussion of fluids, heat, and optics. Our current Phys 1120 and 1220 would remain as the stream for Engineering and physical sciences.
- Our Astr 1100 remains popular, but we are looking at the possibility of running it without the lab component. Some lab activities could be moved into lecture time or assigned as homework, others dropped. This would require a change in course number and re-articulation.
- Our second year courses are somewhat uncertain, which I suppose is fitting for the Quantum-Relativity course at least. We usually get some pretty good students, but in small numbers, so these courses run in guided study mode, and faculty are getting tired of doing a fair bit of work on the side for a few hundred bucks. We are exploring collaboration with other institutions.
- There are some teething problems with our governance structure as we move from an Ed Council to a Senate mode, particularly sorting out what each level is really responsible for – there seems to be a lot of duplication of effort. There is also a debate brewing on what criteria should be used for defining a BSc degree as opposed to a BA. For example, there is a proposal

on the table for a BSc in Psychology – this one does look legitimate, lots of labs, evidence-based treatment and statistical analysis – but a clear set of stated criteria would be very useful.

- In keeping with University status, Kwantlen has the definite intention of developing and supporting our own degree programs. This gives opportunity for growth in all areas, but leaves the status of transfer programs such as Engineering unclear. We live in interesting times!

Yukon College

Summary

1. Since 2002 Yukon College has been offering calculus based physics courses. Physics 101 (Elementary Physics I) covers Linear and Rotational Kinematics, Linear and Rotational Mechanics, Fluids and Heat. Physics 102 (Elementary Physics II) covers Electric and Magnetic Forces and Fields, Electromagnetism, Capacitors, Inductors, AC and DC Circuit Analysis.
 2. Each course is one term (13 weeks) with the following format: 3h lecture, 1h tutorial, 3h lab. Students do ten labs per term. The lab must be completed and handed in within the lab period.
 3. Textbook for both courses: *Fundamentals of Physics, 8th Edition. Halliday, Resnick and Walker.*
 4. Enrolment is typically 6-8 students in Physics 101 and 2-5 students in Physics 102. (Some students do not require Physics 102 for their transfer program.)
 5. In 2007 we offered Astronomy 100 for one term (13 weeks). The focus was on stars and galaxies. Text: *Freedman and Kaufmann. Universe.* There was no lab component to this course.
 6. Yukon College also offers Physics 050 (approximately equal to BC grade 11 physics) and Physics 060 (approximately equal to BC grade 12 physics). The texts for these courses respectively are: *Zitzewitz. Physics: Principles and Problems* and *Nowikow and Heinbecker. Physics: Concepts and Connections*
-

Simon Fraser University (SFU)

Items from SFU Physics

1. We introduced a custom calculus-based version of Giancoli in PHYS 101/102 ('Physics for the Life Sciences' stream). These courses have traditionally been taught with an algebra-based textbook, but do have calculus and biology co-requisites.
2. We have now run a non-credit 'early intervention' program in parallel with first-year courses for two years. Goal is to reduce failure rates in first-year courses by providing remedial help. Feedback from

students is positive, and there is some indication that retention rates may have improved. We plan to run this program again next year.

3. Continuing budget cuts will result in fewer sessional teaching positions and fewer course offerings next year; once again we will not be able to run our Teaching Apprenticeship program.
4. PHYS 190 (astronomy for non-science majors) will be reinstated next year; enrolment in PHYS 192 (musical acoustics), our other breadth course for non-science students is now up to approximately 150.
5. Textbooks

PHYS 100 Introduction to Physics	Knight – <i>College Physics (Custom Ed.)</i>
PHYS 101/102 Physics for Life Sciences	Giancoli – <i>Scientists and Engineers (Custom Ed.)</i>
PHYS 120/121 Standard Physics	Knight – <i>For Scientists and Engineers</i>
PHYS 125/126 Advanced Stream	Halliday, Resnick & Krane – <i>Physics</i> , Taylor, Wheeler – <i>Spacetime Physics</i> , and Moore – <i>Six Ideas that Shaped Physics</i>
PHYS 140/141 Studio Physics	Cummings et al. – <i>Understanding Physics</i>
PHYS 190 Intro to Astronomy	Chaisson/McMillan – <i>A Beginner's Guide</i>
PHYS 192 Logarithm and Blues	Hall – <i>Musical Acoustics</i>
PHYS 211 Mechanics	Taylor – <i>Classical Mechanics</i>
PHYS 221 E&M for Engineers (terminal)	Ulabi – <i>Electromagnetics for Engineers</i>
PHYS 231 & 233 Laboratories	Taylor – <i>Error Analysis</i>
PHYS 255 Vibrations and Waves	French – <i>Vibration and Waves</i>
PHYS 321/421 E&M	Griffiths – <i>Introduction to Electrodynamics</i>
PHYS 285 Special Relativity and QM	Tipler and Llewellyn – <i>Modern Physics</i>

Okanagan College (OC)

Our numbers overall are static this year in Science at Okanagan College compared to last year which was down a bit from the year before (~-10%). The numbers in Physics were up for the calculus-based quite significantly (~+150%) and for the algebra-based were down slightly (~10%). The quality of the calculus-based students was fairly weak. Astronomy was up a bit this year (~+10%) whereas last year the numbers were fairly static (~+1%). We ran Astronomy in

Penticton for the first time this year. We also ran the Engineering Statics and Dynamics for the first time in Kelowna this year.

Our Physics numbers in Penticton were static, up in Salmon Arm a bit and went down quite badly in Vernon. The numbers in Astronomy were up slightly at both Kelowna and Vernon. The overall numbers in Astronomy in both Vernon and Penticton were fairly low. Attrition in first year physics was not as major a problem this year as it was two years ago. Most of the attrition still occurs in the first semester.

This year saw our third year for offering second-year courses at Okanagan College. We planned to offer the Modern Physics (OC PHYS 200), second-year Classical Mechanics (OC PHYS 228), Statics and Dynamics (OC PHYS 202), plus our two second-year labs (OC PHYS 219/229). Due to very low enrolments we had to cancel three of the five second-year courses (PHYS 228, 219, and 229). The remaining courses had low enrolments (1 to 3 students each). I do not know how long we will be able to hang onto the second year courses with those enrolments. I suspect just one more year. We will offer the same courses next year. I expect to see a shift away from the regular second year Physics courses to second year interdisciplinary service courses to other sciences in order to keep some second year presence in Physics (e.g., We have four interdisciplinary second-year courses. They are Environmental and Energy Physics, Biophysics, Geophysics, and History of Cosmology.).

Yours sincerely,
Richard Christie
Chair – Physics and Astronomy
Okanagan College.

Vancouver Island University (VIU)

1. Student numbers were stable in our 1st year. Life sciences courses (P111/P112) bounced back to historical levels (this year: 90/60; last year: 65/45); calculus based courses (P121/P122) remained flat (this year: 49/37; last year 50/40)
2. Second year Electrical Eng transfer still experiencing low numbers despite continued advertising, outreach, Eng Fair, etc. Plans for a Mech Engineering transfer (first term) combined with Green Building diploma program.
3. Second year physics to run for last (?) time. Continued low numbers & cutbacks.

Astronomy ran 4 courses: two 1st year (solar system, stars & galaxies) & two 3rd year (cosmology, history). Numbers were good (90-100 students) despite the lack of a science requirement for Arts students, but are probably nearing saturation.

Columbia College

In 2008/09 Columbia College has run five Physics courses, three of them at the UT level and two high school Physics:

Physics 110 (first part of the calculus based General Physics)

Physics 120 (second part of the calculus based General Physics)

Physics 118 (Engineering Mechanics)

Physics 11

Physics 12.

As for the enrollment at UT courses, it was very stable for Physics 110 and we noticed a significant increase in interest for Physics 120 (25% up, if compared with previous year). We think it is very important for the College that Physics 118 was offered in Summer 2008 for the first time after more than ten years, although the number of students was relatively low (6).

Enrollment in Physics 11 is usually low (10 or less), but still acceptable, while the number of students in our Physics 12 section has been doubled between Summer 2008 and Winter 2009.

Depending on the students' interest, Columbia may try to introduce some second year Physics courses in the near future.

Thompson Rivers University (TRU)

First-year courses

Student numbers in first-year Physics have been relatively stable over the past few years:

Algebra-based Physics

PHYS 110 /120 Capacity = 140 / 120

Calculus Based Physics

PHYS 115 /125 Capacity = 60 / 60

EPHY 115 /125 Capacity = 40 / 40

Astronomy

ASTR 114 (Astronomy: the Solar System) Capacity = 60

ASTR 115 (Astronomy: Stars and Galaxies) Capacity = 60

Service courses:

PHYS 151/161 (Applied Physics 1 / 2) Capacity = 40 / 40

PHYS 158 (Physics for Respiratory Therapists) Capacity =80

Second-year courses

No program change. We have been struggling this past year with low enrolments (4 -9 students).

PHYS 200 Relativity and Quanta Capacity = 16

PHYS 215 Circuit Analysis Capacity = 20

PHYS 220 – Mechanics Capacity = 20

PHYS 225 – Intermediate Electromagnetism Capacity =15

Upper-level courses

No program change. Student numbers in third and fourth year courses have been stable for the past few years (9-10 students). The quality of the students this year was especially good.

New course

In an effort to boost our overall enrolments, a new first-year physics course targeted at non-science students will be offered for the first time this year.

Phys 101 - Physics for Future Leaders

Douglas College

Douglas has been undergoing a lot of change with a new president starting on July 1, a new Vice President of Education arriving sometime in the fall as we sent our current VP to North Island College, and new Dean of Science and Technology who starts on June 1. We welcome Thor Borgford, from SFU and recently Twinstrand Therapeutics.

Due to low numbers two years ago, we were cut 25%. We have reduced our classes at our David Lam (Coquitlam) campus as all science classes have had low enrolment since that campus opened almost 10 years ago. Students can no longer complete their first year science requirements at this campus.

Our astronomy numbers are high, and increasing. We are going to add more sections this fall at the New Westminster campus.

Overall, the numbers for the college, the sciences, and physics appear to have stabilized or increased slightly between fall of 2008 and fall of 2009. We hope that this trend will continue.

Selkirk College

Selkirk College continues to run algebra-based (P102/P103) and calculus-based (P104/P105) first year physics courses. We also run an introductory astronomy course (with a laboratory component) for non-science majors. Our second year course offerings include engineering statics and dynamics (P200/P201), modern physics (P210 relativity & quanta), and electricity & magnetism (P202). All second year courses have very low enrollments. There have been no additions or deletions of courses in the past year. In other news, Selkirk College received NSERC (Natural Sciences and Engineering Research Council) eligibility in 2008 and thus is able to apply for research funding from NSERC and other federal funding agencies.

Coquitlam College

No major changes in Physics at Coquitlam College. We offer Physics 101 (mechanics, heat) in the Summer and Fall semesters and Physics 102 (electricity, magnetism, and optics) in the Spring semester. The enrolment has been good so far - 20 students in 101 classes (full) and 12-15 in 102 classes.

College of New Caledonia (CNC)

First Year Engineering Transfer Program

CNC continues to offer first year Engineering Transfer Program. This year we observed an increase in enrollment both in Applied Science and Physics courses.

Enrollment in 2008/2009 was as follows:

- APSC 100 (Introduction to Engineering) – 22 students
- APSC 120 (Engineering Drawing with AutoCAD) – 28 students
- Physics 101 (Introductory Physics I) – 30 students
- Physics 102 (Introductory Physics II) – 15 students
- Physics 204 (Mechanics I - Statics) – 18 students

In fall 2009 we organized series of presentations of professional engineers from various disciplines of engineering designed primarily for our engineering students but also attended by other science students.

New CNC and UVic Engineering Transfer

In February 2009 CNC and UVic signed a Transfer Agreement similar to one that we already have with UBC. The objective of this agreement is to give local students who would like to study Engineering Program at UVic an opportunity to take first year Engineering in Prince George and to ascertain their seamless transfer to second year at UVic. Upon the completion of all required transfer courses, which could be done in one or two years, students will receive Certificate in Applied Science.

New Medical Radiography Program

A new Medical Radiography Diploma Program is planned to be opened at CNC in 2010. Currently BCIT is the only institution in the province offering training in medical radiography.

Camosun College

Randy Genereux, formerly of Mount Royal College (Calgary), was appointed as the new Dean of the School of Arts and Science at Camosun College in summer, 2008. Dr. Genereux is a psychologist by training and has a long career as a college instructor and administrator in Alberta. There has been a very positive reaction from faculty in the School of Arts and Science to this appointment. Randy has initiated a Recruitment and Retention program which seems to be effective.

Department budgets at Camosun College were rolled by 3% in this fiscal year. In the Physics Department, the retirement of long-time faculty member John Pratt this year facilitated our cutback. John's position has not been filled.

Overall enrolment in Physics & Astronomy courses was up slightly this year, by about 5%. Our special course for high school Physics AP students has been popular, now running for the 2nd year with enrolment about 24. This is a lab course offered to enhance Physics AP for students at Claremont High School (Victoria). We hope to expand enrolment in this course (PHYS 116A) through arrangements with other local high schools.

PHYS 160 Biomechanics for elite athletes, trainers, etc. has been expanded to two sections in 2009, and we anticipate further expansion in coming years.

PHYS 191/192 for Engineering Technology programs continues to have solid enrolment or modest growth.

The Engineering Bridge programs at Camosun (academic upgrading for technology students to enter 3rd year Engineering at UVic or UBC) have been expanded. We offered a 2nd section of PHYS 210 (E/M) in 2009.

Our four 2nd year courses (PHYS 200, 210, 214 and 215) were deactivated in Fall, 2008. Due to voluntary work of our faculty member Bob Sedlock and our Dean (Randy Genereux), three of these courses will be offered again on a probationary basis in 2009 Fall. We have written statements of interest from between 10 – 15 students to take our 2nd year Physics courses.

Astronomy courses (ASTR 101/102) continue to attract students in large numbers.

University of Northern British Columbia (UNBC)

UNBC had no new curriculum changes in Physics for the 2008-2009 academic year. Our enrollment numbers saw an increase in first year numbers of approximately 14%, while second year courses saw a more substantial increase of over 35%. The large increase in second-year numbers may represent a recovery in enrollments related to restructuring that occurred under the previous administration in 2007. We are happy to announce a new president, Dr. George Iwama, who will begin July 1, 2009.

University of Victoria (UVic)

Enrolment in first year for 2008/2009 is up about 6% over 2007/2008.

Our new Astronomy courses Astr 150 and 250 are now established with the rest of the changes in the Astronomy curriculum to be implemented over the next couple of years.

The summer offering of Phys 102 is back up to an enrolment of 55 now that it has been moved back to an evening time slot.

The Department is initiating a revision of the Physics curriculum. In first year a revamped Phys 120 will be accompanied by a new course (Phys 130) on waves and modern physics. The thermodynamics course will be moved from 3rd to 2nd year as Phys 217 replacing Phys 215 (Modern Physics) whose content will be moved elsewhere. The 2nd year mechanics Phys 220 will be replaced by a revised version (Phys 221). These changes influence modifications to our upper level offerings the nature and implementation of which are being discussed.

College of the Rockies

No changes except to personnel.

University of British Columbia – Vancouver (UBC-V)

-- There have been no changes to our 1st or 2nd year programs during the last year.

-- Our enrollment numbers were down 5% and 13% in Physics 101 and 102, respectively. Our "enriched courses Phys 107/108" had increased substantial enrollment increases from 55-->71 and 45-->66 as a result of a new advertising program aimed at the highest-performing grade 12 Physics students applying to UBC.

-- Our Astr 101 enrollment was up by 6% and our Astr 102 enrollment increased by 40%. However our Astr 310 course (taken by Arts students) declined by 15%.

-- Our Phys 200 (Modern Physics & Relativity) course had an enrollment of 95 Majors + Honours students, our Phys 304 (Intro Quantum Mechanics) course had 64 students and our Phys 402 (Applications of Quantum Mechanics) had 22 students.

-- Our new Introductory Computational Physics course Phys 210 had 21 students and our higher level Computational Physics Phys 410 had 49 students.

-- In 2007 we graduated 24 students in Majors Physics, 7 students in Majors Astronomy and 30 students in Honours (both Physics only and joint with other departments). In 2008 we graduated 27 students in Majors Physics, 5 in Majors Astronomy, and 28 in Honours. In May 2009 we graduated 26 students in Majors Physics, 5 in Majors Astronomy and 18 in Honours so our numbers are roughly constant. The number of students graduating in Engineering Physics (APSC) is now around 50 per year.