

THE UNIVERSITY OF NORTH CAROLINA AT ASHEVILLE  
FACULTY SENATE

Senate Document Number 7314S  
Date of Senate Approval 4/03/14

---

Statement of Faculty Senate Action:

**APC Document 61:**                                 **Require PHYS 121 as a corequisite to PHYS 101;**  
   **Require PHYS 122 as a corequisite to PHYS 102**

**Effective Date: Fall 2014**

**1a. Delete:** On page 242, in the description for **PHYS 101, Light and Visual Phenomena:**

Recommended corequisite: PHYS 121.

**Add:** On page 242, in place of deleted entry:

Corequisite: PHYS 121.

**1b. Delete:** On page 243, in the description for **PHYS 121, Light and Visual Phenomena Lab:**

Pre- or corequisite: PHYS 101.

**Add:** On page 243, in place of deleted entry:

Corequisite: PHYS 101.

**2a. Delete:** On page 242, in the description for **PHYS 102, The Physics of Sound and Music:**

Recommended corequisite: PHYS 122.

**Add:** On page 242, in place of deleted entry:

Corequisite: PHYS 122.

**2b. Delete:** On page 243, in the description for **PHYS 122, The Physics of Sound and Music Lab:**

Pre- or corequisite: PHYS 102.

**Add:** On page 243, in place of deleted entry:

Corequisite: PHYS 102.

**3. Delete:** On page 226, under **Bachelor of Science in Music Technology, item II:**

- II. Required courses outside the major—22 hours: CSCI 182; MATH 167; PHYS 102, 131, 231, 310.

**Add:** On page 226, in place of deleted entry:

- II. Required courses outside the major—23 hours: CSCI 182; MATH 167; PHYS 102, 122, 131, 231, 310.

**4. Delete:** On page 233, under **Major in New Media, item II:**

- II. Required courses outside of the major—10 hours: one course from CSCI 181, 182 or 185; MATH 167 or STAT 185, or higher level MATH or STAT; PHYS 101 or 102.

**Add:** On page 233, in place of deleted entry:

- II. Required courses outside of the major—11 hours: one course from CSCI 181, 182 or 185; MATH 167 or STAT 185, or higher level MATH or STAT; PHYS 101 and 121, or PHYS 102 and 122.

**Impact:** The change will require no departmental staffing needs. This will result in a one-credit-hour increase for students completing 1) the Bachelor of Science in Music Technology and 2) the Major in New Media. Both departments have concurred with the change.

**Rationale:** Students that take the lab with the course perform better. We have concluded an assessment of student grades in PHYS 101 and PHYS 102 comparing the group that takes the respective lab and the group that takes the 3-hour course without lab. The results are below.

**PHYS 101 (Totals for Spring 2011, 2012, and 2013)**

	Students Not Taking Lab						Students Taking Lab				
	A	B	C	D	F		A	B	C	D	F
No.	31	79	61	29	13		38	55	43	7	8
%	14	37	29	14	6		25	36	29	5	5
	GPA = 2.40						GPA = 2.72				

The GPA for the students taking lab is significantly greater when compared to those not taking lab. Also, the number of D and F grades in the no-lab group is twice that of the lab group.

**PHYS 102 (Totals for Fall 2012 and Fall 2013)**

	Students Not Taking Lab						Students Taking Lab				
	A	B	C	D	F		A	B	C	D	F
No.	23	41	41	20	7		25	39	40	14	4
%	18	31	31	15	5		20	32	33	11	3
	GPA = 2.40						GPA = 2.55				

Students taking the lab earned a class GPA = 2.55 while those not taking lab had a GPA = 2.40. Note here that the difference for the weaker students. For students not taking lab, 20% receive a D or F in PHYS 102, while only 14% do so for those taking lab.

**Additional Green Benefit.** Requiring the lab will enable us to give all exams online as lab meets in a computer lab. This will be a significant contribution to the environment. For a typical year we have a total of about 200 students. Each of the three exams given during the semester has 4 imprints while the final has 8 imprints. This amounts to  $200 \times 12 = 2400$  imprints saved. Also, integrating the class and lab will reduce the number of handouts needed in class to keep everyone together. This will result in an additional positive effect on the environment.

**Comment Regarding Keep Separate Course Numbers for the Labs.** The proposal is being submitted keeping the current and thus separate numbers for the labs for two reasons: (1) it makes the change simpler as advisors and students already know about these course numbers; (2) students who have taken PHYS 101 or PHYS 102 might want to return to take the lab part as this was the understanding when they took the course. This happens on average for 1 student each semester. I had one case where a student who had taken the "lecture" course when we didn't even have the lab, came back 30 years later to take the lab. He needed one hour of science to graduate.