

High Risk Course Action Plan

Course Name & Number: Human Anatomy and Physiology I; Biol 2401

History of PGR & Retention Averages for Courses

This information was not provided as the data is already available to those requesting the information. However, the following should be noted:

- *Since Spring 2015 the PGR has steadily been increasing. It was 38.7% in Fall 2014 and it has increased each semester thereafter with the last semester, Fall 2016 reaching 54.2%*
- *Sixty-two sections were reviewed and the following was noted:*
 - *the sections with the lowest PGRs had a high number of withdrawals in comparison to the sections with higher PGRs*
 - *only 6 sections (9.6%) had more D's and F's than A's, B's, and C's thus over 90% of the sections had students earning productive grades than non-productive*
 - *the failure rate range was 0 – 23% , with only one section experiencing a 40% rate*

<i>Semester/Year</i>	<i>PGR</i>	<i>Retention (within Semester)</i>

Please attach Sectional PGR and Retention data to this form. **Please note comment above regarding data.**

Semester of Implementation: Fall 2016

The Action Plan:

(For example, this could include professional development, curricular changes, pedagogical changes, student academic support changes, etc.)

- Appendix A outlines the strategies that were implemented in Fall 2016.
- The Anatomy and Physiology faculty all agree that more time is required to fully implement and evaluate the outcomes of the action plan strategies. Therefore, all 2401 sections will continue to implement the strategies.
- Additional actions include requesting funds for laboratory models, weekend open student center times, and to attend Human Anatomy and Physiology Society (HAPS) conferences and meetings.
 - An amount of \$15,312.05 is estimated for the purchase of models for the Science Learning Center. Most, if not all of the models, represent those that the students use in the laboratory classroom but are not available to them for additional studying in the learning center. An itemized list prepared by Ms. Sara Wilkins is included (Appendix B)
 - The Science Learning Center is not open on weekends and evening. Funds to staff the learning center at these times would be most helpful as students cannot readily attend the afternoon hours due to work and family schedule conflicts.
 - The HAPS will hold the following events.
 - [The 2017 Southern Regional Meeting](#) is scheduled for April 15, 2017 - Tyler Junior College, Tyler, Texas. A registration form listing costs for the meeting is included (appendix C).

- [The Annual Conference](#) is scheduled May 24-28, 2017 (Wednesday to Sunday) – Salt Lake City, Utah. A registration form listing costs for the meeting is included (appendix D).

Rationale for Plan:

(Include how this plan interfaces with any previous action plans for this course.)

- It has been an ongoing process to improve Anatomy and Physiology I PGRs. Palo Alto College is not alone in its endeavors as the attrition rate of 30% ([Gultice, Witham, Kallmeyer 2015](#)) is not unusual for gateway science courses. Appendix E represents an action plan submitted in 2009.
- In the Spring 2015 semester, Palo Alto College Anatomy and Physiology course materials (lecture and laboratory) from all three tenured faculty (Linda E Ibarra-Gonzales, Robert Leal, and Sara Wilkins) were forwarded to a consultant. Appendix F is the consultant's report.
- The following changes have been made to the anatomy and physiology course since the action plan of 2009. They are:
 - The lowest lecture exam grade is dropped, if students take all five exams, and is replaced with the Project (lecture quizzes and assignments) average.
 - Lecture exams went from 20% essay questions to 15% essay questions.
 - Weight of final exam changed from 20% to 15%, removing high stakes nature of the test.
 - Removal of cat musculature and in-depth metric system from laboratory class assessments. However, students are still required to complete assignments related to these topics.
 - The grade for first laboratory practical is curved, recognizing students' inexperience with this kind of assessment.
 - The percent weights for the laboratory assessment changed as follows:
 - The laboratory folder weight has changed from 10% to 20% and is now weighted 25%. The notebook is a set of 20 worksheets that are completed outside the scheduled laboratory period, permitting student collaboration. The weight has increased because the notebook represents a considerable amount of student work and a worksheet was added.
 - The laboratory practicals originally were weighted at 65% and over the years dropped to 50% and is now weighted at 45%.
 - The laboratory exercises and worksheets were revised to eliminate as much physiology from the lab and leave it for discussion in the lecture.
 - Modified Mastering A&P was adopted with the current textbook. This version of mastering permits single access point to the program directly from Canvas. In addition, students are provided with a number of resources such as, but not limited to:
 - Chapter guide
 - Practice quizzes
 - Practice exams
 - Chapter Games and Activities
 - eText
 - VidaBody – narrated tours of key body systems. They are interactive, mobile-friendly, and closed-captioned.
 - Get Ready for A&P – introductory A&P source
 - Why This Matters videos
 - Tutorials – A&P Flix, MP3 Tutor Sessions; Interactive Physiology, Video Tutors
 - Practice Anatomy Lab – provides images of models, histological samples, human and cat cadavers with the opportunity to take practice quizzes and laboratory exams
 - Bone and Dissection videos for axial and appendicular skeleton
 - Pre-Lab Videos

- Clinical Case Studies
- System Connections – helps students use their knowledge of A&P to make connections across body systems

Appendix A

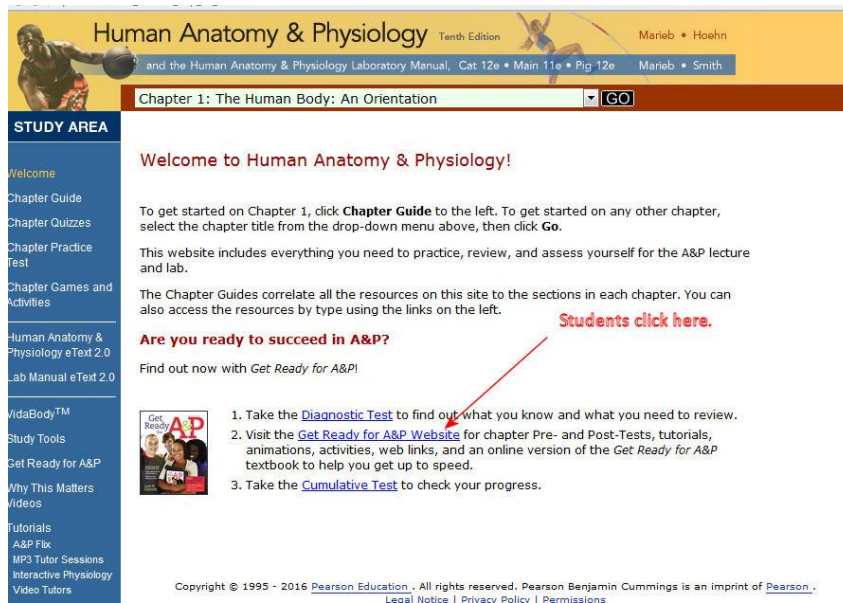
Biol 2401 Lecture and Laboratory Activities for Fall 2016

Lecture

Students will be assigned two additional project activities using the Mastering A&P website that accompanies the textbook. These activities will address student learning styles and time management. Students will print or hand write the outcomes of the online activities. **These will need to be assigned after the first exam.** The following outlines how to access the activities and how they should be graded.

Activities

1. Students must access the Study Area in Mastering A&P. Once they click on the Study Area link the Welcome page will be presented (see image). Click on Get Ready for A&P Website link located in the center of the page.



2. In the *Chapter 1: "Go"*.

3. Access *Style?"*

Learning heading and complete the activity.

4. Students will submit their results by capturing the screen and pasting it into an MSWord document or simply hand-writing the results, including the activities to carry out for each learning style. Sometimes, students can right click on the mouse and then click "Print". My experience is that this does not always for work for everyone – I do not know why.
5. To complete the time management activity, students need to scroll down on the same page and access "*Where Does Your Time Go*". A list of various activities are presented with two columns noting the following: "How many hours per day?" they spend completing the activities and "How many days per week?" they carry out the activities.
6. After entering all the information, they click on "*Calculate*" and then "*Print*". The printed document includes their itemized hours and how many hours they have remaining for studying.
7. The student is not done yet. They will need to click on "*Next*", which is on the same page where the "Print" prompt is located. Students will receive the following message after clicking print: "Now that you know how much time you have for studying, you can plan your week." They will be presented with a schedule that will allow them to plan their week given the number of hours they have left for studying. Once they complete this, they click on "Print". This is the second document they need to submit for this activity.

chapter menu bar select *Study Skills* and click

"What is Your Learning under the Direct Your

Appendix A

Grading

1. These are two separate activities and thus two grades will be assigned.
2. Assignments are graded on the basis of completion as directed. For example, the Learning Style assignment requires they submit not only the type of learner they are but also the list of activities recommended they carry out for the learning style they most relate to. This information is provided by the program. If they cannot screen capture it and paste it into MSWord or directly print it out from the site, they **MUST** hand write the information.
3. The time management assignment is complete if students submit a copy of their itemized hours which also notes how many hours are left for studying and the schedule they plan with the remaining hours left for studying.

I strongly recommend you carry out these activities before you assign them.

Laboratory

In the laboratory students will have to visit the Science Learning Center (SLC) in Frio and participate in three separate sessions in which they will review materials and then take a quiz after the review. This is a SLC activity, therefore, the review and the quiz **MUST** be completed in the SLC. Please note the following:

1. Sessions will be held for only a specific period of time (see table below).
2. The activities will relate to the laboratory objectives for laboratory practicals 2, 3, and 4. Laboratory practical 1 is excluded since it is curved.
3. Students will be provided with models and name tags. They are required to identify twenty-five (25) structures using name tags. They are only required to spend a minimum of 30 minutes reviewing and then they can complete the quiz. Students may work in a group and collectively do so for 30 minutes, if and only if, all members are present for the entire required time period.
4. Each faculty member will provide Mr. Gildemeister a roster (it attached to the email) with the students name for each section. You do not need to type in the student's name. Simply go the ACES roster and copy and paste your roster (only student names) into MSWord. Clean it up a bit, but maintaining the table format. Now copy and paste it into the roster. If you need assistance, please let me know.
5. I will prepare the quizzes and import them into your courses. They are worth 10 points and will serve as the bonus points for laboratory practicals 2, 3, 4, respectively.

Session	Structures and/or concepts that need to be reviewed	Availability of Quiz and Materials for Review
1	<p>Bones</p> <ol style="list-style-type: none"> 1. Cervical vertebrae 2. Coccyx 3. Coxal bone/ox coxa/pelvic 4. Distal phalanx 5. Femur 6. Fibula 7. Hyoid 8. Humerus 9. Maxilla 10. Metacarpal IV 11. Metatarsal II 12. Parietal 13. Patella 14. Radius 15. Scapula 16. Talus 17. Tibia 18. Triquetrum/triquetral 19. True ribs 20. Ulna <p>Skin</p> <ol style="list-style-type: none"> 21. Arrector pili muscle 22. Dermis 23. Eccrine gland/sweat gland/sudoriferous gland 24. Epidermis 25. Pacinian corpuscle 	September 20 – October 14

Appendix A

Session	Structures and/or concepts that need to be reviewed	Availability of Quiz and Materials for Review
2	<p>Muscles</p> <ol style="list-style-type: none"> 1. Brachialis 2. Brachioradialis 3. Deltoid 4. Extensor carpi radialis longus 5. External intercostal 6. Flexor carpi ulnaris 7. Gluteus medius 8. Iliacus 9. Latissimus dorsi 10. Masseter 11. Pectoralis major 12. Rectus abdominis 13. Semimembranosus 14. Soleus 15. Splenius capitis 16. Sternocleidomastoid 17. Supraspinatus 18. Temporal belly/temporalis 19. Tibialis anterior 20. Triceps brachii 21. Vastus lateralis <p>Joints</p> <ol style="list-style-type: none"> 21. Condylloid 22. Gomphosis 23. Saddle 24. Symphysis 	October 17 – November 4

Session	Structures and/or concepts that need to be reviewed	Availability of Quiz and Materials for Review
3	<p>Neuron Anatomy</p> <ol style="list-style-type: none"> 1. Axon 2. Dendrite 3. Myelin sheath 4. Soma/cell body <p>Brain</p> <ol style="list-style-type: none"> 5. Cerebellum 6. Corpus callosum 7. Hypothalamus 8. Longitudinal fissure 9. Occipital lobe <p>Spinal Cord</p> <ol style="list-style-type: none"> 10. Anterior horn 11. Lateral funiculus 12. Spinal nerve 13. Ventral root <p>PNS and ANS</p> <ol style="list-style-type: none"> 14. Femoral nerve 15. Lumbar plexus 16. T₁ – L₂ (students need to identify this represents the sympathetic nervous system) 17. Ulnar nerve <p>Eye</p> <ol style="list-style-type: none"> 18. Cornea 19. Lacrimal gland 20. Lateral rectus 21. Retina <p>Ear</p> <ol style="list-style-type: none"> 22. Cochlea 23. External auditory meatus 24. Stapes 25. Tympanic membrane 	November 7 – 23

Appendix B

Models Needed by the Science Learning Center in Frio Hall (Rm. 111)

Catalog Numbers are from Ward's Science (2017)				
Catalog Number	Item Name	Quantity	Item Price for 1	Total Price
813031	Somso Animal Mitosis Model Set	1	\$805.00	\$805.00
813288	Somso Cochlea Section Model	1	\$764.00	\$764.00
814018	Somso Central Nervous System Model	1	\$1,925.00	\$1,925.00
811178	3B Functional Shoulder Joint Model	1	\$105.00	\$105.00
811190	3B Functional Elbow Joint Model	1	\$105.00	\$105.00
811191	3B Functional Hip Joint Model	1	\$105.00	\$105.00
811179	3B Functional Knee Joint Model	1	\$105.00	\$105.00
470136-322	Eisco Color Coded Spine	1	\$124.00	\$124.00
810650	Ward's Muscle Type Model Set	1	\$1,235.95	\$1,235.95
811121	3B Scientific Skin Model	1	\$129.00	\$129.00
814740	Motor Neuron Model	1	\$830.00	\$830.00
823562	Somso Dissectable Skull (colored)	2	\$815.00	\$1,630.00
470112-576	3B Scientific Median Section of the Head Model	1	\$154.00	\$154.00
813020	Somso Neuron Model	1	\$435.00	\$435.00
813141	Somso Larynx with Tongue Model	1	\$545.00	\$545.00
814747	DNA Model Kit	1	\$675.10	\$675.10
470119-022	3B Scientific ½ Size Muscular Figure	1	\$3,710.00	\$3,710.00
813113	3B Ear Model	1	\$204.00	\$204.00
813287	Somso Inner Ear Model	1	\$650.00	\$650.00
813519	Somso Eye in Orbit Model	1	\$920.00	\$920.00
			TOTAL	\$15,156.05

Carolina Biological Models (not in the Ward's catalog)				
566800	Altay Human Reflex Pathway Model	1	\$156.00	\$156.00

			TOTAL of Ward's and Carolina Added Together	\$15,312.05
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Appendix C



2017 Spring Southern Regional Conference Registration Form Tyler, Texas April 15, 2017

<input type="checkbox"/> Mr. <input type="checkbox"/> Ms. <input type="checkbox"/> Mrs. <input type="checkbox"/> Dr.	First name	Middle name	Last name
Suffix (Jr., III)	Degree	Institution/ Company Name	
Department Title/Position	Address	City	
State/Province	ZIP/Postal Code	Country	
Business Phone	Cell Phone	E-mail	
Menu Option			
<input type="checkbox"/> Regular <input type="checkbox"/> Vegetarian <input type="checkbox"/> Vegan <input type="checkbox"/> Other _____			
Are you a member? Why not give the HAPS discussion group a try – just check the box!			Sign me up! <input type="checkbox"/>

Registration Fees

HAPS Contingent Faculty	<input type="checkbox"/>	\$75.00	<input type="checkbox"/>	<input type="checkbox"/>
HAPS Member Registration		\$ 85.00	<input type="checkbox"/>	<input type="checkbox"/>
Non-Member – Contingent Faculty		\$95.00	<input type="checkbox"/>	<input type="checkbox"/>
Non-Member Registration		\$115.00	<input type="checkbox"/>	<input type="checkbox"/>
Student Registration	<input type="checkbox"/>	\$35.00	<input type="checkbox"/>	<input type="checkbox"/>

Late Fees (Starting March 25, 2017)

HAPS Contingent Faculty	\$85.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HAPS Member Registration	\$ 95.00					
Non-Member Contingent Faculty	\$105.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-Member Registration	\$125.00					
Student Registration	\$35.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FAX forms to 706-883-8215 or postal mail to:

Mail checks to:
HAPS
251 S. L. White Blvd
P.O. Box 2945
LaGrange, GA 30241

Credit Card Type: <input type="checkbox"/> Visa <input type="checkbox"/> MC <input type="checkbox"/> American Express <input type="checkbox"/> Discover	Amount charged to card \$
Card Number	
Expiration Date	Security Code
Name	
Address (please include card zip code)	

For questions, contact HAPS Main Office at info@hapsconnect.org or 1-800-448-4277. Thank you for your payment!

Conference Photo Consent

When you register for the HAPS Regional Conference, you affirmed that you agreed to allow HAPS photographers to record your participation and reproduce your likeness in publications, online, etc.

Appendix D

2017 Annual HAPS Conference Registration Form

Name		Guest Name (if applicable)		E-mail Address		
Institution			Street Address			
City	State/Province	Zip Code	Country		Phone	
Menu Options: Regular <input type="checkbox"/> Vegetarian <input type="checkbox"/> Vegan <input type="checkbox"/> Other _____			Please list the first HAPS Annual Conference you attended?			
Is this your FIRST HAPS Annual Conference? If so, you are invited to attend a FREE First Timers' Breakfast. <input type="checkbox"/>			Is this your SECOND HAPS Annual Conference? If so, you are invited to attend a FREE Second Timers' Breakfast. <input type="checkbox"/>			
Do you plan to retire in the next 12 months? Yes <input type="checkbox"/> No <input type="checkbox"/>						
If yes, do you give HAPS permission to announce this at the upcoming HAPS Conference? Yes <input type="checkbox"/> No <input type="checkbox"/>						
Would you like to be added to the HAPS-L Physiology Discussion Group? Yes <input type="checkbox"/> No <input type="checkbox"/> I'm already signed up! <input type="checkbox"/>						
Entire Conference Package May 24 - May 28, 2017 (includes Update Seminars and Workshop Package)						
Early Rates Until 2/17	Member	Non-Member	Guest	Student	Student-Non-Member	Emeritus Member
	\$410	\$510		\$21	\$22	\$300
Regular 2/18-4/21	\$435	\$535	\$5	\$23	\$25	\$325
Late 4/22-5/10	\$460	\$560	\$5	\$24	\$26	\$350
Update Seminar Package May 24 - 26, 2017						
Early Rates Until 2/17	Member	Non-Member	Guest	Student	Student-Non-Member	Emeritus Member
	\$335	\$435		\$18	\$20	\$245
Regular 2/18-4/21	\$360	\$460	\$5	\$19	\$21	\$270
Late 4/22-5/10	\$385	\$485	\$5	\$22	\$23	\$295
Workshop Package May 27 - 28, 2017						
Early Rates Until 2/17	Member	Non-Member	Guest	Student	Student-Non-Member	Emeritus Member
		\$385		\$15	\$17	\$200
Regular 2/18-4/21	\$31	\$410	N/	\$17	\$18	\$225
Late 4/22-5/10	\$33	\$435	N/	\$19	\$20	\$250
Additio						
HAPS 2017 Short-sleeve T-shirt w/ Conference	\$20 Quantity _____		HAPS 2017 Long-sleeve T-shirt w/ Conference Logo		\$25 Quantity _____	
	Size: S M L XL 2XL				Size: S M L XL 2XL	
HAPS 2017 Wick-away runner t-shirt w/ L	\$25 Quantity _____		HAPS 2017 Men's Polo Shirt		\$40 Quantity _____	
	Size: S M L XL 2XL				Size: S M L XL 2XL	
Polo Shirt	\$40 Quantity _____		HAPS 2017 Conference Pin		\$7 Quantity _____	
	Size: S M L XL 2XL					
FAX to 706.883.8215, e-mail to info@hapsconnect.org or send to: HAPS 251 S. L. White Blvd. P.O. Box 2945 LaGrange, GA 30241-2945 A check is enclosed, payable to HAPS Credit Card: Visa MC American Express Discover Card # _____ Dollar amount to be charged to card US \$ _____,00 Exp. Date : _____ Verification Number : _____ Name _____			Total Payment Amount			
			I would like to join HAPS or renew my dues (\$100 regular, \$80 contingent faculty, \$15 student, \$50 retired)			\$ _____
			Voluntary Donation to HAPS Foundation (If donating, may we thank you in the <i>HAPS Educator</i> ?) _____			\$ _____
			Registration Fee (member, non-member, etc.)			\$ _____
			Guest Registration Fee			\$ _____
			Conference Shirt			\$ _____
Conference Pin			\$ _____			
Total Payment			\$ _____			

Appendix D

Conference Photo Consent

When you register for the HAPS 2017 Annual Conference, you affirmed that you agreed to allow HAPS photographers to record your participation and reproduce your likeness in publications, online, etc.

Speaker and Workshop Presentation Policy

HAPS cannot provide PowerPoint presentations or videos from Update Speakers or workshop presenters. If an attendee would like a copy of a speaker or presenters material, individuals should ask for materials directly from the speaker/presenter if they so desire. Photos and videos of presentations are forbidden without permission from that speaker/presenter. Please contact the HAPS Main Office with any questions you may have.

*Until the end of the regular registration period, a withdrawing registrant will receive a full refund minus a handling fee equal to 15% of the registration fee. From the beginning of the late registration period up to 5 business days before the conference begins, 75% of the registration fee will be refundable. No refunds will be made later than 5 days before the conference begins. Refund of fees requires an emailed request to info@hpsconnect.org no later than 5 business days before the start of the conference. Refund requests received prior to the conference **may not** be processed until after the conference end.*

Strategies Implemented Prior to 2009 – 10

Strategy	Action
Assure academic preparedness	<ul style="list-style-type: none"> • Changed the Basic Skills Levels for Biol 2401 to reflect college level English and reading and math at the 0303 level. • Principles of Anatomy and Physiology (Biol 2301) was developed and offered. Course is designed for students who have little to no science background, are considering an allied health major, and do not meet the basic skill levels. The course focuses on study skills and an overview of anatomy and physiology. • Ms. Sara Wilkins posted the “Survival Guide to Anatomy & Physiology” document online. Ms. Wilkins designed the document based on suggestions made by former students and her teaching experience. Ms. Wilkins also posted the “Seven Learning Styles” document online that identifies the 7 different learning modalities and includes a website where students can go and discover which modality is suited to their learning style. • Ms. Wilkins posted the following on-line documents to demonstrate the challenge students can expect when they transfer to the professional school: (1) example of “State Board Questions” for the following professions: RN, LVN, PT, and DH; (2) example of RN assignment from nursing school; and (3) handouts listing all LVN, RN, and PT programs in Texas.
Uniform and consistent departmental guidelines for Anatomy and Physiology courses	<ul style="list-style-type: none"> • Linda E. Ibarra-Gonzales, lead instructor, developed the <i>Anatomy and Physiology Policies and Guidelines</i>, a dynamic document, which is reviewed annually by the Anatomy and Physiology faculty. The document is an attempt for uniformity in syllabi, assessments, and learning activities. The guidelines are intended to be followed by both full-time and adjunct faculty.
Align the pre-nursing and nursing curriculum	<ul style="list-style-type: none"> • As a goal of the Achieving the Dream initiative, Dr. Cecilia V. Gonzales met in 2006 with Dr. Norma Martinez Rogers, Associate Professor Nursing at the University of Texas Health Science Center at San Antonio (UTHSCSA), to review their experience and the subsequent success of students from the Alamo Colleges. This led to the formation of the <i>Improving Nursing School Retention: Alignment of Pre-Nursing and Nursing Curricula Committee</i>. Membership in the committee included faculty and directors from the following institutions: UTHSCSA, St. Mary’s University, University of the Incarnate Word, and representatives from the Alamo Colleges. Dr. Gonzales and Linda E. Ibarra-Gonzales were members of this committee. Members of the group designed and offered two Annual Improving Nursing School Retention: Alignment of Pre-nursing & Nursing Curricula: <ul style="list-style-type: none"> ○ 2007—Dr. Cecilia V. Gonzales presented for the Alamo Colleges ○ 2008 -- Due to the sudden death of Dr. Gonzales’ mother, Linda E. Ibarra-Gonzales presented for Dr. Gonzales. • All full-time Anatomy and Physiology faculty members attended both conferences. Attendance at these conferences lead to the following changes: more writing and critical thinking exercises and collaborative learning activities.

Appendix E

Strategies Implemented Prior to 2009 – 10

Strategy	Action
Standardize course content	<ul style="list-style-type: none"> • Dr. Gonzales, Mrs. Ibarra-Gonzales, Ms. Wilkins and Mr. Leal began the process of reviewing the Anatomy and Physiology content. This process is still on-going with an anticipated completion for Spring 2010.
Minimize student apprehension regarding different lecture and lab instructors	<ul style="list-style-type: none"> • Beginning in Fall 2007, the lecture and laboratory sections were linked so that lecture and lab sections are taught by the same instructor; lecture precedes the lab.
Change assessment component	<p>Full-time faculty agreed to the following:</p> <ol style="list-style-type: none"> 1. The weight of the final exam was changed from 20% to 15% of the course grade. 2. The weight of the lecture projects was changed from 10% to 15%. 3. Lecture exams include 80% objective questions and 20% essay. 4. Allow for extra credit on all exams, lecture and laboratory, but cannot exceed a maximum of five points. 5. Minimum of ten quizzes should be administered in both lecture and laboratory sections with students having the opportunity to drop the lowest quiz grade. 6. Students will submit all worksheets and faculty will randomly select ten of the total number of laboratory worksheets to grade. Laboratory objectives, exercises, and worksheet objectives engage students in learning activities that complement the content.
Expand resources	<ul style="list-style-type: none"> • Invited Mr. Ed Gildemeister, director of the Science Learning Center (SLC), to come to all the Anatomy and Physiology classes during the first week of class to explain to students what the center has to offer. While students do not receive credit for attending the center, they are strongly encouraged to visit to observe histological preparations and models that were studied in the laboratory class. Many of the Anatomy and Physiology I students are unfamiliar with the format of the lab practicals; therefore sample laboratory exams are made available. The center also provides limited tutoring services. • Ms. Wilkins discussed the “SMARTHINKING” program and posted the handout on-line. • Textbooks for the course included <i>Get Ready for Anatomy and Physiology</i>, an interactive supplement, which provides exercises in time management, test-taking strategies, learning modalities, how to study techniques, and math and anatomy and physiology condensed content sections. • The first day of class, students are provided with instructions and an overview of the textbook publisher’s website. This site contains extensive digital and interactive resources which include: E-book, animations and videos of difficult physiology concepts, flash cards, glossary, quizzes, games and an elaborate Practice Anatomy Lab (PAL). The PAL has invaluable lab material, including labeled histological slides, labeled cats for the different systems and muscles, labeled models for the different systems, etc. This website also includes practice lab quizzes and practicals. • Review for lecture and laboratory exams are posted on-line.

Appendix E

Strategies Implemented Prior to 2009 – 10

Strategy	Action
Reduce cost of required books/manuals	<ul style="list-style-type: none"> • Ms. Linda Ibarra-Gonzales created the Anatomy and Physiology Lab Website to serve as a textbook and student resource for Biol 2401 and Biol 2402 courses. • The website provides lab objectives, protocols for experiments, on-line quizzes, and study guides. This on-line format allows students to have 24-hour access to images of laboratory materials such as models, histological preparations, preserved specimens, and laboratory set-ups and results. • The design of materials follows a format that clearly outlines the laboratory objectives, materials, and activities. In addition laboratory objectives have been incorporated into worksheets that students submit on-line. This mode of submission allows students to receive immediate feedback. • Use of the on-line lab manual requires that students work in pairs or collaboratively to share a laptop computer and complete the laboratory activities while incorporating all areas of learning styles. The on-line medium compliments visual and auditory learners. Students have the opportunity to hear and see the course material through the publisher's website and that created by the faculty. • The laboratory exercises also support the hands-on kinesthetic learner. <p>For additional lab website information, visit http://www.alamo.edu/pac/faculty/lgonzales/aplabs/Main/index.htm</p> <p>The site is password protected: the password for Biol 2401 is <i>cervical</i> and for Biol 2402 the password is <i>trachea</i>.</p>
Encourage student interaction with faculty outside of the class time	<ul style="list-style-type: none"> • All anatomy and physiology faculty hold 10 hours of office time with some faculty holding office hours in the SLC. • Faculty advise students during the entire semester, not only during the required advisement period.

Appendix E

2009-10 Strategies (Current)

Strategy	Action
Standardize exams in accordance to Human Anatomy and Physiology Society (HAPS) national exam	<ul style="list-style-type: none"> • Review the HAPS nationally normed examination. • Faculty members submitted exams (a total of 10) they currently use to the lead instructor (Linda E. Ibarra-Gonzales) for the establishment of a PAC database of exam questions. This project is on-going.
Increase collaborative learning in the laboratory	<ul style="list-style-type: none"> • The laboratory format for Biol 2401 has been reorganized to include more collaborative learning activities which include timed assignments where students work in groups to help each other learn the concepts and skills outlined in the laboratory objectives. During these activities, faculty guide students and show them how to make the connection of what they doing with the lecture content. • Faculty are using more group collaborative quizzes so that students can help each other learn.
Assess the effectiveness of internet Anatomy and Physiology course offerings	<ul style="list-style-type: none"> • The Biol 2402 course is rigorous and time consuming and as an on-line course it proved to be far more challenging for students; therefore, the on-line Biol 2402 course was removed from the Fall 2009 schedule. • The Biol 2401 on-line course now has a weekly two-hour mandatory on-campus session. Evaluation at conclusion of fall semester will determine the effectiveness of the required on campus session. Results will determine the need and type of further modifications/changes .
Implement revised dropped policy	<ul style="list-style-type: none"> • Before Fall 2009, students were not dropped for non-attendance. Currently, faculty members are dropping students for non attendance before the census date and also before the last day to drop.

Appendix E

Proposed Strategies (Spring 2010----)

Strategy	Action	Anticipated Outcome
Introduce supplemental instructional (SI) learning activities	Ms. Wilkins will attend the Supplemental Instruction Leadership Training Conference in January 2010. Ms. Wilkins will coordinate the supplemental instruction for the Science Department.	It is anticipated that some Anatomy and Physiology classes will include a SI component (if enough students apply) and that participation in this activity will improve student performance.
Integrate SLC and the how to study video seminar activities into Anatomy and Physiology courses	Require student participation in selected SLC activities: Practice practicals and completion of specific assignments from the "Where There is a Will There is an A, How to Get Better Grades in College", video seminar. SLC staff will administer and monitor these assignments.	It is anticipated that participation and completion of assigned SLC activities will improve student study skills and learning.
Include assignments that require student access to the publisher's website	Mr. David Lopez, Pearson Higher Education textbook representative, will train faculty on the new on-line resources available through the publisher's website. All Anatomy and Physiology classes will include specific assignments from the publisher's website.	It is anticipated that completion of assigned on-line learning activities will improve student learning
Implement Alamo Colleges district-wide curriculum alignment	Faculty will meet with Brad Chandler, PAC representative to the district alignment committee, to review proposed and approved changes to the course syllabi and learning outcomes. Anatomy and Physiology faculty will revise the course (lecture and lab) as necessary in compliance with district changes.	It is anticipated that PAC Anatomy and Physiology program will be in alignment with the district alignment.
Design course assessments that reflect district alignment	Faculty will revise content exams to reflect the following: 70% limited to recall and general knowledge; 20% writing, and 10% higher order thinking (H. O. T.) questions. Laboratory assessment will change from the current exams, quizzes, and worksheets to only exams and quizzes. The revised lab assessment will reflect the following: 60% laboratory exams and 40% quizzes. Lab quizzes will be based on objectives included in each laboratory exercise. These quizzes will be administered on-line at the student's convenience within the scheduled timeline.	It is anticipated that Anatomy and Physiology assessment will be standardized and reflect changes made to the curriculum and student learning activities.
Modify Teaching	Faculty will examine teaching practices and modify in accordance with proposed changes in student learning activities, assessments, and course content.	It is anticipated that Anatomy and Physiology faculty will change their teaching practices.

Appendix E

Summary of Proposed Strategies for Anatomy and Physiology

Area of Focus	Action
Faculty and Teaching	<ul style="list-style-type: none"> • Consensus on the PAC Anatomy and Physiology Program • Changes in teaching practices to include more activities that facilitate student engagement in lecture • Monthly meeting to share ideas and changes (teaching methodology matrix) and their effect on student engagement and learning
Students Engagement in Learning	<ul style="list-style-type: none"> • Participation in required SLC and Publisher’s web site (requires access code) learning activities • Regular attendance • Active listening and participation in activities • Optional participation in SI instruction • Complete textbook reading assignments (requires purchase of text or its access in the PAC LRC) • Timely completion and submission of assignments
Assessment	<ul style="list-style-type: none"> • Standardized examination components
Curriculum Alignment	<ul style="list-style-type: none"> • Compliance to district learning outcomes
Productive Grade and Retention Rates	<ul style="list-style-type: none"> • Evaluate effectiveness of proposed actions on productive grade and retention rates.
Student Tool Box	<ul style="list-style-type: none"> • Develop matrix that identifies what every anatomy and physiology student should know and be able to demonstrate <ul style="list-style-type: none"> ○ Passing rate on standardized final exam of core anatomy and physiology concepts ○ Laboratory skills (to be identified) ○ College level writing ○ Awareness of prerequisites for their professional school ○ Engagement in learning activities ○ Responsibility for learning and consequences of non-compliance

MEMORANDUM

SUBJECT: Review of PAC BIOL 2401 and BIOL 2402 Success and Retention Data

Please accept this memorandum as my review of Palo Alto College's BIOL 2401: Human Anatomy and Physiology I and BIOL 2402: Human Anatomy and Physiology II. This review is based on specific course information (i.e. course syllabi, assessments, etc.) received from four Palo Alto College instructors of BIOL 2401 and BIOL 2402.

- *Analysis of student learning outcomes*
According to all of the course syllabi that were reviewed, the student learning outcomes included in each syllabus were acceptable. The learning outcomes are comparable to those of other BIOL 2401 and BIOL 2402 courses taught in the District, so it's noted that they meet the expectations of what students should learn from these courses.
- *Analysis of quantity of material covered*
BIOL 2401 and BIOL 2402 are in-depth, rigorous courses, so it was expected that both courses would cover a vast amount of specific information related to the human body. This review validates this expectation, and it's evident that instructors must determine how to present this information in a way that's reasonable and appropriate for a 16-week course. Although it's expected that some course topics are taught in both lecture and lab to reinforce information, it was noted from the review that most of the course information was presented in both lecture and lab, which can be overwhelming for students and time-consuming for instructors. It is recommended that instructors determine how to divide up information in lecture and lab as not to overwhelm students in either component of the course, which will, also, provide more time for instructors to answer questions and clarify lecture/lab topics.
- *Analysis of the pace of material covered*
The pace of material covered in BIOL 2401 and BIOL 2402 is fast, which was expected prior to this review. According to the course syllabi and course calendars provided for the review, it appears that both courses present a new chapter each week, which is comparable to other BIOL 2401 and BIOL 2402 courses in the District.
- *Analysis of depth of understanding required for each assessment*
BIOL 2401 and BIOL 2402 are rigorous courses that require a strong fundamental understanding of basic biological concepts as they build considerably on these concepts. Prior to this review, it was expected that both courses require students to comprehend and analyze information, which exceeds basic knowledge of human biology. This review validates this expectation, so it is recommended that students be encouraged to take an introductory college-level biology course (i.e. BIOL 1408) prior to enrolling in BIOL 2401.

- *Analysis of required textbook(s) and supplementary materials*

The required textbook used for BIOL 2401 and BIOL 2402 is acceptable, and the supplementary materials provided by the instructors are adequate. However, it's noted that some of the supplementary materials (i.e. lab quizzes) lacked clear and specific instructions while others (i.e. homework assignments/worksheets) need to be revised in a way that reinforces specific information, instead of including questions/activities that cover everything in a chapter. Also, it is suggested that students are allowed some class time to work on homework assignments/worksheets, which provides them an opportunity to work together and ask questions about what they don't understand.

- *Analysis of classroom management policies*

After reviewing all course syllabi submitted for this review, it's noted that all instructors use the departmental syllabi as the basis for their own. Although remaining consistent in this regard is acceptable and expected, it's clearly evident that the tone of the syllabi is unpleasant, uncompromising, and, somewhat, discouraging. Many negative words (i.e. "no" and "not") are used and stressed throughout the syllabi, without any acknowledgement or suggestions of how students can succeed in either course. It is recommended that syllabi are rewritten to minimize the negative tone and to include suggestions/opportunities of how academic success can be achieved in these courses.

According to all course syllabi, it was, also, noted that instructors expect students to calculate their grade throughout the course. However, specific grade calculations were clearly absent from all syllabi that were reviewed. It is recommended that all course syllabi include a specific grade formula and grade calculation to provide students with an example of how to determine their grade throughout the semester.

In addition, all course syllabi lacked the specific amount of assessments (i.e. exams, quizzes, worksheets, projects, etc.) that students are expected to complete in these courses. To ensure that student expectations are clearly presented in these courses, it is recommended that all course syllabi include the specific amount of exams, quizzes, assignments, etc. that students will complete as well as the specific point value of each assessment item.

- *Analysis of necessary level of student preparedness*

According to the Palo Alto College 2010-2011 Catalog, it is recommended that students take CHEM 1405: Introductory Chemistry I prior to enrolling into BIOL 2401. However, the majority of information taught in CHEM 1405 is not required in BIOL 2401 nor in BIOL 2402. Although basic chemistry knowledge is necessary for both courses, this information is taught at the beginning of BIOL 2401. So, it is recommended that BIOL 1408: Biology for Non-Science Majors I should be taken prior to BIOL 2401, instead of CHEM 1405. This recommendation is based on the rationale that students enrolling in a sophomore-level biology course should have some knowledge of basic biological concepts, which are presented in a freshman-level biology course.

Comments by E.B. Skelley

1. Nursing schools require completion of Chemistry 1405 (a freshman level course).
2. Chemistry 1405 is a pre-requisite for two other Biology courses required by Nursing Schools.
3. At the beginning of Biol 2401 chemistry is addressed – in my experience, students who have not completed the introductory chemistry course often become lost at this point.

4. It would be helpful for students to complete a freshman-level Biology course, however no such course is required for nursing school admission.

- *Recommendation for re-design of course(s)*

It is recommended that BIOL 2401 and BIOL 2402 include some type of group work in lecture and/or lab. This recommendation is based on the rationale that collaborative learning promotes academic success in the classroom. When students are able and encouraged to work together, lecture/lab concepts can be discussed and clarified, and critical thinking/problem solving can be practiced in a group setting.

- *Other recommendation(s)*

It is recommended that instructors offer tutoring to students during office hours to clarify concepts and to address student questions and concerns. This recommendation is based on the rationale that additional help from the instructor outside of the classroom reinforces learned information improving success on course assessments.

It is, also, recommended that all course syllabi include a calendar or timeline of the course, which informs students of specific assignment due dates and specific dates of exams/quizzes. The rationale for this recommendation is based on the idea that well-defined student expectations presented at the beginning of the course promotes student success. So, students, who are fully aware of what's expected in the course, are able to adequately prepare themselves for it.