

FACULTY ANNUAL REVIEW

LAMAR UNIVERSITY

Submitted by: James L Drachenberg

College: Arts and Sciences

Department: Physics

Rank: Assistant Professor

Status: ☐ Non-Tenure Track
☒ Tenure Track
☐ Tenured

Reporting Period, Calendar Year 2017.

Performance Scores:

Numeric score

Merit Reward Level

Exemplary Performance

(level 5)

Highest merit

High Performance

(level 4)

High merit

Adequate Performance

(level 3)

Merit

Marginal Performance

(level 2)

No merit

Unsatisfactory Performance

(level 1)

No raise

Chair: _____ (Signature)

Date: Feb. 26, 2018

Evaluation/Merit Score: 4.93 (from Section IV, page 5)

Performance was satisfactory ☒

Performance was unsatisfactory ☐

[Note: An unsatisfactory rating on Section I mandates an unsatisfactory overall performance evaluation for any faculty member.]

Faculty Acknowledgment

_____ (Signature)

Date: _____

☐ Faculty disputes the evaluation [Attach documentation of appeal, give to chair for transmittal to dean]

COLLEGE of _____

Dean: _____ (Signature)

Date: _____

Performance was satisfactory ☐

Performance was unsatisfactory ☐

Comments (not required):

I. TEACHING AND INSTRUCTIONAL ACTIVITIES (For examples, see Appendix IV to Form F2.08, "Instructions and Comments.")

Goals (See Appendix IV, Item #1):

1. Continue development of active-learning methods for PHYS 1402.
2. Develop a set of recorded lecture intros for 1402 students to view before class meetings.
3. Use 1402 labs developed recently to compile a new formal laboratory manual.
4. Develop an introductory packet for data analysis techniques for 1402 students.

Accomplishments for the evaluation year:

Teaching Proficiency/Teaching Effectiveness.

1. I teach PHYS 1402 in a traditional, lecture style with weekly homework assignments administered through MasteringPhysics, weekly in-class quizzes, weekly web-based quizzes administered through MasteringPhysics, three monthly in-class examinations, and a comprehensive final exam. I post PowerPoint lecture slides on Blackboard for students to view prior to coming to class and for facilitating in-class note-taking. I utilize multiple-choice questions for facilitating in-class discussion of lecture material in the manner of so-called active-learning methods.
2. After the Spring 2017 semester, the standard 1401 and 1402 course text (Wilson, Buffa, Lou) went out of print. For the Fall 2017 semester, I reviewed and selected a new course text (Knight, Jones, Field).
3. In PHYS 1402, I continued to utilize the "streamlined" curriculum initially launched for the Spring 2016 semester. For the Spring 2017, I developed a set of 15-20 minute pre-lecture recordings using the introductory material from the previously discussed PowerPoint lecture slides. I posted the recordings on Blackboard, for students to watch as many times as desired and at their own pace. With the lecture time freed by the recordings, I added concept questions, example problems, or demonstrations, depending upon the subject matter. For the Fall 2017 semester, I adapted the lecture slides and recordings to utilize the notation from the new course text.

Initial feedback on the lecture recordings has been quite positive. Students appreciate the ability to re-watch the recordings. Furthermore, the additional in-class demonstrations have been very effective instruction tools and well received by the students. The disruptions caused by Harvey provided an opportunity to evaluate the effectiveness of the recordings in isolation, i.e. in the absence of face-to-face interaction. To supplement, I created additional recordings, working out the in-class example problems in PowerPoint and animating the various portions of the equations, as I would have during lecture. Overwhelmingly, students performed much more poorly when quizzed over material from the fully on-line weeks when compared to the weeks of face-to-face instruction. While a portion of this discrepancy must surely be due to the stress of the profound difficulties induced by the storm, it is nevertheless suggestive that a key portion of the learning in 1402 comes during the in-class discussions and dialogue between professor and student. Moving forward, I will look for other opportunities to test this hypothesis, as it may prove useful in planning and retooling other courses.

4. For the Spring 2017 semester, I implemented changes to 1402 lab, as discussed in last years F2.08:
 - Each lab group (3-4 students) turned in a single electronic spreadsheet of data
 - Each individual student completed a short, quantitative discussion and interpretation of collected data. The discussions center around the use of simple statistical tools to

quantitatively evaluate behavior, e.g. R^2 for linearity of a regression and z for testing consistency with expected values.

- I began the semester with an introduction to data analysis. For a spring-mass system, we each measured the oscillation period for 8 different masses. I compiled the data into a spreadsheet and distributed this to the students. I then walked them through a real-time analysis of the data to extract the spring constant, discussing concepts such as random and systematic uncertainties and the key statistical tools used throughout the semester.
- I provided the students a hand-out packet summarizing the quantitative tools used during the semester.

After using Spring 2017 a trial semester, I formalized the new lab manual and distributed it for student purchase at the campus bookstore for the Fall 2017.

5. For the Fall 2017 semester, I taught my second offering of the majors' course in Quantum Mechanics. Building from the curriculum developed for Fall 2016, I delivered in the traditional, in-person, lecture-style format, including weekly homework assignments, two in-class examinations, and a comprehensive final exam. I updated the set of PowerPoint lecture slides developed during the Fall 2016 semester, adding to them pre-worked example problems for use during lecture. As with the Fall 2016 semester, I posted lecture slides several days ahead of time for student use. I continued to post electronic copies of all written solutions to weekly homework assignments and the two exams on Blackboard after the due dates.

For the two-weeks of on-line instruction required for Harvey, I implemented the same lecture recording technique as used for 1402, including recording example problems and animating in PowerPoint. This was quite a challenge for the students, and fortunately after a week all were able to attend class in person. However, we all endured; and the approach allowed us to stay on time for the semester, covering all topics as outlined in the original syllabus.

Again, one of the most difficult aspects for the students was the mathematic rigor, including the formalism. Having taught it previously, I was able to anticipate this better in Fall 2017 than I did for Fall 2016. Many of my Fall 2016 students went on to take a "special topic" offering of the standard Mathematical Methods for Physicists. Overwhelmingly, the consensus is that a consistent offering of Math Methods will provide useful introductions to the mathematical tools that will help in quantum, as well as other upper-level courses.

6. In Spring 2017, I became the McNair Scholars faculty mentor for Suzanne Wheeler. As a preparation for our research, I offered a special topic independent study, "Introduction to Hadronic Research." The guided study mostly centered around readings that would comprise her McNair literature review. During face-to-face meetings, we discussed the basic fundamentals of the particle physics, the basics of physics topics under study at the Relativistic Heavy Ion Collider, the detectors comprising STAR, and the deeper motivations behind the McNair research topic she selected. This introductory approach worked well and is an experience I will consider for future undergraduate research students of mine.
7. I have reviewed my course evaluations, and comments are largely positive. At the request of our department chair, I do not post the evaluations, here.
8. Served as a graduate/professional school reference for seven students from PHYS 1402 and 4320:
 - a) Jeremy Fam (1402 student; medical school)
 - b) Tayla Thibodeaux (1402 student; medical school)
 - c) Joy Collins (1402 student; Baylor College of Medicine Summer Surgery Program)
 - d) Ethan Smathers (1402 student; veterinary school)
 - e) Aaron Phillips (4320 student; graduate school in physics, four letters)

- f) Suzanne Wheeler (4320 student; graduate school in physics, fifteen letters)
- g) Alicia Grant (1402 student; secondary science teacher)

9. Facilitated opportunities for two current/former PHYS 1402 students, Tayla Thibodeaux and Horace Haynes, to shadow my wife, Annie Drachenberg, M.D., at her family medicine clinic in Lumberton, TX.

Faculty Schedule. [Note: Faculty member's teaching schedule for all semesters (provided on-line by LU Faculty Web Pages) or a summary that includes at a minimum course identification and numbers enrolled. Other information may be included — e.g., off campus, web-based, interactive video, etc.]

Spring 2017

PHYS 1402-01 College Physics II	MWF	11:30 AM-12:25 PM	26
PHYS 1402-02 College Physics II	TR	3:50 PM-5:10 PM	20
PHYS 1402-11 College Physics II Lab	R	8:00 AM-10:00 AM	11
PHYS 1402-12 College Physics II Lab	R	11:30 AM-1:30 PM	13
PHYS 4301-04 Introduction to Hadronic Physics Research	F	1:00 AM-4:00 AM	1

Fall 2017

PHYS 1402-01 College Physics II	TR	9:35 AM-10:55 AM	20
PHYS 1402-11 College Physics II Lab	T	11:10 AM-1:10 PM	10
PHYS 1402-12 College Physics II Lab	T	1:20 PM-3:20 PM	10
PHYS 4320-01 Introduction to Quantum Mechanics	MWF	8:00 AM-8:55 AM	7

Chair Review: Evaluation Score: 5.0

(NOTE: A score of 1 on this section **mandates** an overall unsatisfactory rating by Chair.)

Comments:

All in all, Dr. Drachenberg is doing an outstanding job. He is very accessible with a constant open-door to students and this is borne out by student comments and from my direct observations. Dr. Drachenberg exhibits great patience towards assisting to students in understanding the material. He does this through employing a form of the Socratic method in leading the students to the right answer. It is an effective technique, but it requires patience and time in getting the student to work through his/her misconceptions and strike upon the correct conceptual approach. This further shows a very positive attitude towards students.

He also has been employing a pedagogical innovation through providing 15- to 20-minute pre-lecture recordings using the introductory material from the previously discussed PowerPoint lecture slides. The recordings are posted on Blackboard to allow students to go through the material at their own pace. We should explore on how other faculty may incorporate this technique of pre-lecture recordings for other course offerings in the Physics Dept.

Overall quite positive and thoughtful comments from the student evaluations, but the response rate is rather small. Fall 1402-1: 5/25, Spring 1402-1: 5/18, 1402-1 4/17, Physics 4320: 2/5. This is a general observation and not limited to one faculty member. We as a department need to be proactive in encouraging students to fill out the evaluation forms.

Dr. Drachenberg is a valued teacher and a great asset to the Physics Department.

II. RESEARCH, PUBLICATION, SCHOLARSHIP, AND/OR CREATIVE ACTIVITIES (For examples, see Appendix IV to Form F2.08, "Instructions and Comments.")

Goals (See Appendix IV, Item #1):

1. Publication of the Collins effect paper, currently in internal review
2. Complete term as co-convenor of STAR Spin PWG
3. Utilize the published Collins data to examine spin-averaged hadronization in the same high-energy proton-proton collisions. Complete a "preliminary" analysis to be shown publicly at an external conference.
4. Leverage my STAR research to establish an undergraduate research experience for Lamar physics students

Accomplishments for the evaluation year:

[Note: Indicate refereed items with an asterisk (*) and invited items with a pound sign (#).]

Research Projects

Nuclear Physics Research at STAR

1. Continued as an active member of the STAR Collaboration. STAR (an acronym for "Solenoidal Tracker at RHIC") is an international collaboration of several hundred scientists located at Brookhaven National Laboratory's Relativistic Heavy Ion Collider (RHIC). STAR investigates high-energy nuclear interactions, as well as proton structure and the nature of the strong nuclear force, in particular, as it relates to the phenomena of "spin" (intrinsic angular momentum).
2. Completed my three-year term as co-convenor of the STAR Spin Physics Working Group (PWG) in June 2017. This is a leadership position within the collaboration, tasked with organizing and overseeing research falling under the umbrella category of "spin physics." Responsibilities include
 - a. Chairing weekly teleconference meetings of the PWG
 - b. Soliciting, reviewing, editing, and approving all conference abstracts, presentations, and proceedings
 - c. Organizing and chairing parallel sessions for biannual STAR Collaboration Meetings
 - d. Serving on committees for STAR internal review of journal articles on research conducted under the auspices of the Spin PWG
3. Began a three-year term as one of two STAR Deputy Spokesperson in July 2017. STAR deputies are members of the STAR Collaboration management team. Quoting from the STAR Collaboration Bylaws:
"Deputy Spokespersons may be appointed by the Spokesperson(s) subject to the approval of the Council. The Spokesperson(s) and the deputies must all belong to different

institutions. The deputy Spokespersons provide support and assistance to the Spokesperson(s) in the management of the experiment and collaboration. They may be authorized by the Spokesperson(s) to act on his/her/their behalf and to represent the Collaboration.”

4. Completed the review process for my paper describing the first observation of the “Collins effect” in spin-polarized proton-proton collisions. The Collins effect is a non-perturbative mechanism that correlates quark transverse spin-polarization with the orientation of particles produced when the quark “hadronizes,” i.e. converts into observable particles. This mechanism has been previously observed in the scattering of leptons from spin-polarized proton targets. However, it has never been seen in collisions between two protons. Such an observation may have intriguing implications for the nature of the strong force. The paper was accepted for publication in Physical Review D on Dec. 28, 2017 [did not appear in the journal until Feb. 2, 2018].
5. As Suzanne Wheeler’s McNair research mentor, I developed an undergraduate nuclear physics research experience. For the pilot experience I arranged the following:
 - a. Secured for Suzanne a guest appointment at Brookhaven National Laboratory (BNL), which is to my knowledge a first for Lamar
 - b. Assisted Suzanne in various tasks associated with joining the STAR collaboration, including setting up accounts on the RHIC computing facility and requisite training
 - c. Mentored her through an analysis of Monte Carlo simulations to understand how STAR detector response and efficiencies affect certain physics observables
 - d. Arranged for her to attend the STAR collaboration meeting at BNL in May 2017
 - e. Gave her a tour of the STAR experimental hall and control room
 - f. Arranged visits to two historic scientific sites on Long Island: Nikola Tesla’s Wardenclyffe Lab in Shoreham and Einstein’s summering cottage in Cutchogue
 - g. Arranged a visit to the Texas A&M Cyclotron Institute in August 2017. Visit included a tour of the Cyclotron facilities guided by A&M physics professor, Carl Gagliardi.
 - h. Advised her through the process of compiling a poster for presenting her completed work at the annual Fall Meeting of the APS Division of Nuclear PhysicsThe BNL trip was featured in LU News in June 2017.
6. As STAR Deputy Spokesperson, I chaired a committee to develop “blind analysis” techniques for analyzing isobar collision data for signals of the “chiral magnetic effect” (CME). In 2018 STAR will collect data from ^{96}Zr and ^{96}Ru with a goal of understanding the effect—or lack thereof—of electromagnetic fields generated by the colliding ions, in particular that of the magnetic field, on the dynamics of the quark-gluon plasma created in the collision. The difference in charge between the two systems is predicted to result in a difference in the observables associated with this CME. To ensure the data are not analyzed in a biased manner, STAR management assembled a committee to investigate and develop an analysis blinding procedure for the isobar data. I agreed to serve as chair. The explicit charge included consideration of the following:
 - a. Techniques used to blind the data and how the un-blinding rubric should be stored
 - b. Which analyses should be blinded and the expectations for collaborators contributing to such analyses
 - c. The minimal conditions to be met before an un-blinding can be considered
 - d. The procedure and timeline the un-blinding procedure should follow
 - e. What steps, if any, can be taken in the analysis after the un-blinding
 - f. How STAR proceeds to announce the data to the publicAs chair of the Analysis Blinding Committee, I had the following responsibilities:
 - a. Convening and chairing teleconference meetings every two weeks
 - b. Soliciting information from STAR CME analysts concerning analysis procedures

- c. Convening and chairing a parallel session on analysis blinding at the May 2017 STAR collaboration meeting at BNL
 - d. Presenting a report in the plenary session at the May 2017 collaboration meeting
 - e. Compiling the text of the blinding recommendation
- The committee deliberations should conclude in early 2018.
- 7. Traveled to BNL to lead a week-long data-taking shift at STAR (June 6-June 13, 2017).
 - 8. Traveled to BNL for two STAR Meetings:
 - a. STAR Collaboration Meeting (May 15-20, 2017)
 - i. Convened and chaired parallel sessions of the Spin-PWG
 - ii. Chaired one of the plenary sessions
 - iii. Delivered a plenary talk summarizing results from the Spin-PWG
 - b. STAR Analysis Meeting (November 2-4, 2017)
 - i. Convened and chaired a parallel session on “blind analysis” techniques for evaluating chiral magnetic effect signals in isobar collision data
 - ii. Delivered a report from the STAR Analysis Blinding Committee during a plenary session
 - iii. Presented a report on the status of my analysis of gluon fragmentation functions during a parallel session of the Spin-PWG
 - 9. Served on the program committee for the STAR Collaboration Meeting that was held at BNL in May 2017.
 - 10. Served on the organizing committee for the STAR Collaboration Meeting to be held at Lawrence Berkeley National Laboratory in January 2018.
 - 11. Served on the “godparent committee” (GPC) for drafting a journal article entitled “Transverse spin-dependent azimuthal correlations of charged pion pairs measured in $p^\uparrow + p$ collisions at $\sqrt{s} = 500$ GeV.” This paper has been submitted to the journal and is in the reviewer response stage. It is likely to be published in Physics Letters B in 2018.
 - 12. Submitted conference proceedings for a presentation given at the XXV International Workshop on Deep-Inelastic Scattering and Related Subjects held at the University of Birmingham, UK, April 3-7, 2017. Proceedings will be published in early 2018.

Presentations (Abstracts Published)

- 13. (#) Gave an invited presentation entitled, “Illuminating Nucleon Structure Through Polarized Proton-Proton Collisions at STAR,” at the XXV International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2017) held at the University of Birmingham, UK, from April 3-7, 2017. Of the international conference series held annually, DIS has the highest profile for spin physics research. DIS proceedings are published online in Proceedings of Science.
- 14. (#) Gave an invited presentation entitled, “RHIC Cold QCD: The Familiar and the Frontier,” at the RHIC & AGS Users’ Group Open Forum Meeting at the 2017 Fall Meeting of the APS Division of Nuclear Physics (DNP 2017) in Pittsburgh, PA.
- 15. Gave a contributed presentation entitled, “Illuminating QCD and Nucleon Structure Through the Study of Hadrons Within Jets at STAR,” at the 2017 Fall Meeting of the APS Division of Nuclear Physics (DNP 2017) in Pittsburgh, PA. This is a high profile national

meeting for the nuclear physics community, held annually each fall. Abstracts are published in the Bulletin of APS.

16. Suzanne Wheeler contributed a poster her McNair research at the Conference Experience for Undergraduates Poster Session at DNP 2017 in Pittsburgh. The poster is titled, "Multiplicities of Hadrons Within Jets at STAR." The abstract is published in the Bulletin of APS, with Suzanne as lead author and myself as co-author.

Publications

As an active member of STAR, I am coauthor to all journal publications of the STAR Collaboration. In 2017, my name appeared on 10 published journal articles as a result of my work with RHIC experiments. It goes without saying that my contributions to most of these papers is quite minimal. Here, I list only those papers to which I made a contribution in terms of either data analysis, peer-review, or an intellectual contribution. I also do not list papers that were accepted for publication in 2017 but appeared in the journal in 2018.

17. (*) L. Adamczyk et al. (STAR Collaboration), "Measurement of the cross section and longitudinal double-spin asymmetry for di-jet production in polarized pp collisions at $\sqrt{s} = 200$ GeV," Physical Review D 95, 071103(R) (4/28/2017). **Contribution:** *Served on the godparent committee to compose and review the manuscript drafts. Served as Spin PWG co-convenor during the discussions of the analysis documented by the article.*

Grants

18. Submitted an National Science Foundation (NSF) proposal, "RUI: Probing the Nature of QCD Through Transverse Spin Physics at RHIC," on November 6, 2017.
19. Submitted in March 2017 a proposal for the Summer Faculty Research Award, funded through the Lamar University Center for Teaching and Learning Enhancement. Proposal was unsuccessful (no feedback provided).

Conferences Attended

20. XXV International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2017) held at the University of Birmingham, UK, from April 3-7, 2017.
21. 2017 Fall Meeting of the APS Division of Nuclear Physics (DNP 2017) in Pittsburgh, PA.

Chair Review: Evaluation Score: 5.0

Comments:

I will echo what was written by Paul Bernazzani for last year's F2.08:

Dr. Drachenberg continues his collaboration efforts with the solenoidal tracker at RHIC (STAR) group. As he develops his individual research platform I expect that he involves students in a more significant manner, start presenting at national conferences, and submit research proposals on a biannual basis. I recommend the development of a medium to long

term research plan that would include these activities. The Department, and the College will certainly offer reasonable support of these pursuits.

Dr. Drachenberg has made great strides in shoring up any deficiencies from the last F2.08. He is involving students in a very meaningful way in his research. Dr. Drachenberg is Suzanne Wheeler's McNair research mentor. In item II.5 above, he details the tailored program he has developed for Ms. Wheeler's undergraduate nuclear physics research experience. For example, Dr. Drachenberg secured for Ms. Wheeler a guest appointment at Brookhaven National Laboratory (BNL), which is a first for Lamar. And this was announced broadly by the University Press. Further, as described in the Section I, item 6, Dr. Drachenberg offered a special topic for independent study, "Introduction to Hadronic Research." The guided study mostly centered around readings that would comprise her McNair literature review.

Dr. Drachenberg is, in my view, a rising star within the STAR collaboration. His work on the Collins effect in spin-polarized proton-proton collisions was accepted for publication in the top-tier journal Phys. Rev. D (and published on Feb. 2, 2018). The STAR Collaboration adheres to alphabetical order for publications, but Dr. Drachenberg is the first author of this work. He is a co-author of a further ten papers from the STAR collaboration. He is presenting his work at national and international venues as an invited speaker. He is in several leadership roles with STAR; he just finished the job of co-convenor for the spin physics working group and he has recently taken on the position of one of the two Deputy Spokespersons for the STAR Collaboration.

Dr. Drachenberg is an extremely active researcher. He is focused and resourceful. I am fully confident that he will ultimately be awarded a prestigious NSF or DOE grant in the future. The success rate is low for these competitive research grants, however, and it takes time to establish a research program. All in all, Dr. Drachenberg has the telltale signs of becoming a highly successful and well-funded researcher.

III. PROFESSIONAL SERVICE TO THE DISCIPLINE, UNIVERSITY, AND/OR COMMUNITY (For examples, see Appendix IV to Form F2.08, "Instructions and Comments.")

Goals (See Appendix IV, Item #1):

1. Complete SACS assessments for physics department.
2. Complete the department-chair search process.

Accomplishments for the evaluation year:

Professional Affiliations

1. Member of the American Physical Society (APS).

Service to Discipline

2. **Professional Reference:** I served as a professional reference for the following colleagues:
 - a. Devika Gunarathne, a STAR colleague applying for permanent residency

- b. Daniel Olivitt, a STAR colleague applying for postdoctoral positions in nuclear physics
- c. Jamie Stafford, a former Lamar student currently studying physics in graduate school at the University of Houston, applying for the DOE Computational Science Graduate Fellowship

Service to Department

- 3. **Physics SACS Liaison:** Compiled the results of courses evaluated for SACS, composed the report, updated target measures and goals, and submitted the report on Weave in summer 2017. Filed the report plan for the next year in the fall of 2017.
- 4. **Physics Department Chair Search Committee:** Evaluated candidates and participated in Skype interviews, phone reference checks, and on-sight interviews. The search successfully concluded with Dr. Phillip Cole joining Lamar as physics department chair for the Fall 2017 semester.

Service to College

- 5. **McNair Scholars Mentor:** Mentored Suzanne Wheeler as a McNair scholar during 2017. Composed a letter in support of Tyler LeBlanc's (successful) application for the 2018 program.
- 6. College Curriculum Committee Member

Service to University

- 7. **McNair Scholars Mentor:** Mentored Suzanne Wheeler as a Lamar University McNair Scholar during 2017. Composed a letter in support of Tyler LeBlanc's (successful) application for the 2018 program. Quoting from the McNair Program Website, *"The Ronald E. McNair Post-Baccalaureate Achievement Program, known at Lamar University as the McNair Scholars Program, is seeking talented college juniors and seniors who are first-generation and low-income students, or who are from a group underrepresented at the doctoral level. Established in 1986 by the U.S. Department of Education and named for astronaut and Challenger space shuttle crewmember Ronald McNair, the program encourages students to pursue graduate studies by providing opportunities to define goals, to engage in research, and to develop the skills and student/faculty mentor relationships critical to success at the doctoral level."*
- 8. **Undergraduate Research Activities:**
 - a. Advised Alek Hutson in assembling a successful grant through the Lamar Office of Undergraduate Research (OUR).
 - b. Served as a reviewer for OUR Grant proposals during Fall 2017.
 - c. Served as a reviewer for Summer Undergraduate Research Fellowship (SURF) proposals in Spring 2017.
 - d. Served as a judge at the Undergraduate Research Expo in Spring 2017.
- 9. **Society of Physics Students:** In Fall 2017 became co-advisor for the Lamar University chapter of the Society of Physics Students (SPS). Quoting from the SPS website, *"The Society of Physics Students (SPS) is a professional association explicitly designed for students and their advisers. Membership, through collegiate chapters, is open to anyone interested in physics. The only requirement for membership is that you be*

interested in physics. Besides physics majors, our members include majors in astronomy, chemistry, computer science, engineering, geology, mathematics, medicine, and other fields."

As co-advisor, my main responsibility is coordinating activities concerning the Sigma Pi Sigma honors society, housed within SPS. In Fall 2017, I developed new criteria for induction into Sigma Pi Sigma and provided invitations to eligible members of SPS. The induction ceremony—the first at Lamar in several years—will take place in 2018.

Chair Review: Evaluation Score: 4.5

Comments:

I will echo what was written by Paul Bernazzani for last year's F2.08:

Dr. Drachenberg is to be commended for his work as SACS liaison and for the co-organization of the regional APS meeting in Beaumont. As the tenure clock moves forward, I recommend he seeks more College and University level service contributions.

As an untenured professor, we clearly do not want to overburden the faculty member with too much service, but we must also strike a balance so as to elevate the professor's profile within the university. I therefore encourage Dr. Drachenberg to help with organizing outreach activities, such as with physics demonstrations to high schools, aiding logistics associated with undergraduate research presentations at Lamar, Cardinal View, as well as helping with SPS activities such as field trips to LIGO or to the Texas A&M Cyclotron Institute as he arranged for his McNair student.

I commend Dr. Drachenberg for his good work as the SACS liaison. With the advice of the Dean, I will help him find a high-impact university-level committee where he can make significant and meaningful contributions. And therefore such an opportunity will provide Dr. Drachenberg the well-deserved recognition across campus as the strong and thoughtful faculty member that he is.

IV. EVALUATION/ RECOMMENDATION BY CHAIR

Workload Distribution for this Evaluation Year:

(40 to 60%)
% Teaching = 45

(20 to 40%)
% Research/Scholarship = 40

(10 to 30%)
%Service = 15

The Chair will calculate a Composite Score for each faculty member, according to departmental workload policies.

$[(\text{Teaching score}) \cdot (\% \text{ workload})] + [(\text{Research/Scholarship score}) \cdot (\% \text{ workload})] + [(\text{Service score}) \cdot (\% \text{ workload})]$

= 4.93 **CHAIR'S COMPOSITE SCORE**

[Note: Chair's Composite Score should be recorded also on Evaluation/Merit Score line on page 1 of this form.]

Chair's Overall Comments:

*** END OF FORM F2.08. SEE APPENDICES FOR SUPPLEMENTARY FORMS AND INSTRUCTIONS. ***

**LAMAR UNIVERSITY
APPENDIX I FOR FORM F2.08
FACULTY and CHAIR PLANNING PAGE
Academic Year 2018**

Faculty James L. Drachenberg **Department** Physics

This page is a **department level planning document** intended to enhance communication between each faculty member and the department chair/library coordinator. It should be completed during the annual performance evaluation conference between chair/coordinator and faculty member, and no later than April 10. For units which have elected to establish performance measures for each Merit Reward Level and have had them approved by the faculty, chair, dean, and provost, the goal-setting portion of this form may be omitted. These performance measures must be established and/or modified no later than December 31 preceding the year in which they will be in force.

Workload Distribution for the next Planning Calendar Year:

% Teaching = 45 _____ % Research-Scholarship = 40 _____ %Service = 15 _____

I. TEACHING AND INSTRUCTIONAL ACTIVITIES

Goals for next calendar year:

1. Continue innovation of active-learning methods for PHYS 1402.
2. Leverage data-driven methods to enhance instruction of most challenging concepts
3. Continue development of data reduction/analysis course for physics majors, including folding in examples from on-going Lamar faculty research
4. Focus on improving student performance in quantum mechanics, specifically as it pertains to the mathematical formalism

II. RESEARCH, PUBLICATION, SCHOLARSHIP, AND/OR CREATIVE ACTIVITIES

Goals for next calendar year:

1. Continue activities as deputy spokesperson
2. Complete "preliminary" analysis of gluon fragmentation functions to be shown publicly at an external conference
3. Expand undergraduate research opportunities in STAR
4. Continue to pursue external funding opportunities

III. PROFESSIONAL SERVICE TO THE DISCIPLINE, UNIVERSITY, AND/OR COMMUNITY

Goals for next calendar year:

1. Complete SACS assessments for physics department.
2. Continue advising activities for SPS.

COMMENTS:

Faculty Member Signature & Date: _____

Chair/Coordinator Signature & Date: _____

LAMAR UNIVERSITY
APPENDIX II FOR FORM F2.08
PROBATIONARY FACULTY ANNUAL PROGRESS ASSESSMENT PAGE
Academic Year _____

Name of Faculty Member _____

Department _____

Each **TENURED FACULTY MEMBER**, excluding the chair and dean, must review a summary of the professional accomplishments since appointment to a tenure track position at Lamar University of each probationary faculty member. The documents reviewed may be either copies of all F2.08s since appointment without the evaluative comments, or an appropriate summary written by the faculty member. The purpose of this review is to assess whether or not the probationary faculty member is making satisfactory progress towards tenure. This evaluation will occur in the first, third, and fifth years of tenure track service. (See Section 15.3.9 of the *Faculty Handbook* for actions during the second and fourth years.) The chair of the Department Tenure Committee is responsible for conducting the vote (except in the first year of service) and providing to the chair of the department and the faculty member a summary of progress, concerns and potential remedies (i.e., outlining for each deficiency an appropriate remedy). Annual performance scores by themselves **DO NOT** constitute satisfactory progress towards tenure. Again, this page must be completed early in the annual evaluation process in years 1 (no vote), 3, and 5 with comprehensive peer evaluations conducted during the 2nd and 4th years.

Of the tenured faculty members, _____ voted that satisfactory progress is being made towards tenure and _____ voted that progress towards tenure is unsatisfactory.

SIGNATURE/DATE: _____

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

LAMAR UNIVERSITY
APPENDIX III FOR FORM 2.08
TENURED FACULTY ANNUAL PEER ASSESSMENT PAGE
Academic Year _____

Name _____ Department _____

As part of the post tenure review process, TENURED FACULTY MEMBERS – excluding the chair and dean – annually must review a summary of the accomplishments in the categories of teaching, research/scholarship/creative activity, and service/administration of each tenured faculty member. (At the reviewable faculty member's discretion, copies of the five most recent F2.08s without chair/dean evaluative comments may be used as a summary of accomplishments.) As described in Section 43.2 of the *Faculty Handbook*, while each unit must complete this form, it may establish its own process – which must be approved by the faculty, chair, dean, and provost – to accomplish this review. Rather than conducting such an evaluation each year, a department may elect to review each tenured faculty member at least once every six years. In either case, the process for peers conducting “a comprehensive performance evaluation ... no more often than once every year, but no less often than once every six years after the date the faculty member was granted tenure or received an academic promotion” must be written and approved by the faculty, chair, dean, and provost.

The following tenured faculty members, voted _____ to _____ that the faculty member indicated above is / is not (circle one) meeting expectations of the program and/or department in teaching, research and service.

SIGNATURE/DATE

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Rationale/Comments: (Note: See Section 43.2, Paragraph 2, of the Faculty Handbook for a discussion of post-tenure review and Texas law.)

**LAMAR UNIVERSITY
APPENDIX IV FOR FORM 2.08
INSTRUCTIONS AND COMMENTS**

1. The evaluation period is the previous calendar year (January 1 – December 31). In each section, the probationary faculty member and faculty in units which have not established approved performance standards for each Merit Reward Level category will list established goals and accomplishments for the evaluation period. These accomplishments should be consistent with and contribute significantly to professional, departmental, and/or college goals. The goals should come directly from Appendix I to Form F2.08, the current planning page (discussed in item #11 below).
 2. Only Section I will be completed and submitted if you are in a non-tenure track position (e.g., some instructors, lecturer, adjunct, graduate teaching assistant, visiting faculty, clinical instructor). Every person contracted to teach at any time during the evaluation period must complete Section I and be evaluated at the department level. (Note: Departments may require submission of additional materials.)
 3. A tenure track faculty member should use the guidelines for tenure and promotion developed by his/her department as well as those found in Forms F2.09 and F2.10 as supplemental instructions for completion of the F2.08 FACULTY ANNUAL REVIEW form.
 4. Place your name, department, and college in the header so that it will appear on every page of the document.
 5. Complete all appropriate demographic information on the first page. The following are examples of activities and contributions to be included under each heading on the F2.08.
-

Teaching and Instructional Activities.

1. Faculty member's knowledge of his /her teaching field and ability to articulate this knowledge.
2. Significant contributions to the development of courses, curricula and other teaching activities.
3. Student Evaluations, Peer Evaluations or other external review of teaching.
4. Other [Note: The result of course evaluation by students is only one factor considered in the evaluation of teaching. While not a comprehensive list, other appropriate contributions upon which the annual evaluation may be based include: documented course improvement and/or development; participation in assessment and learning improvement activities for the major or core curriculum; completion of professional development activities related to teaching; direction of undergraduate research/scholarship/creative activity projects, honors and master's theses, and dissertations (publications and grants resulting from these activities should be included in Section II of the F2.08); effective advisement and mentoring of students; teaching of new courses; teaching at non-standard times (e.g., nights, weekends). In addition, peer evaluation of classes and/or submission of a teaching portfolio that demonstrates the connections between course description, objectives, teaching content and learner activities are evaluation approaches that may be used by chairs and deans.]

Research, Publication, Scholarship and/or Creative Activities (indicate refereed items with an asterisk (*)) and invited items with a pound sign (#) for both presentations and publications).

1. Publications (include reprints).
2. Scholarly/professional works (e.g., production of shows, recitals, recordings, musical compositions, commissions, performances, demonstrations, lighting, and set or costume design).
3. Scholarly papers presented at professional meetings (include title, any co-presenters, event, location, dates).
 - A. INVITED LECTURES:
 - B. CONTRIBUTED PRESENTATIONS:
 - i. Off-campus:
 - ii. On-campus:
4. Service as a commentator, panelist, or discussant at professional meetings.
5. Maintenance of a current perspective in discipline through attendance at professional meetings, workshops, seminars, or credit courses, and completion of additional graduate work, degrees, or certificates.
6. Direction and leadership of extra-curricular seminars, workshops, demonstrations, or comparable creative activities (not related to regular classroom teaching).
7. List of funded research and scholarly activities by title, funding source, amount, and period of funding.
 - A. *Funded:*
 - B. *Under Review:*
8. List of non-funded research and scholarly activities.
9. Direction of theses, dissertations, and undergraduate research projects, as well as service on committees:
 - A. *Dissertations:*
 - B. *Masters' Theses:*
 - C. *Honors Theses:*
 - D. *Undergraduate Research Projects:*
 - E. *Graduate and Undergraduate (specify)Committees:*
10. Other

Professional Service to the Discipline, University, and/or Community

Professional Achievement.

1. Recognition for achievement in discipline (e.g., honors, awards, medals, commendations from professional academic organizations, educational institutions, governmental agencies or private foundations).
2. Professional service, such as service as an officer in state, national, or international organization, or as chairperson of professional committees.

3. Community service, such as consultation in area of professional competence.
4. Other

Participation in College and University affairs.

1. Service on department, college and university councils and committees, to include Faculty Senate.
 - A. Departmental Service:
 - B. College Service:
 - C. University Service:
2. Service as chair of department, college and university councils and committees, to include Faculty Senate.
3. Service as academic advisor and/or contributions during freshman orientation.
4. Sponsorship of academic organizations.
5. Assisting with administrative duties of department or college.
6. Other

Demonstrated Performance as Leader.

1. Service in leadership roles in department, college, or university.
2. Recognition by peers for leadership ability.
3. Other

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6. Performance ratings are defined as: (Level 5) Exemplary Performance – Performance far exceeds the standards set by the department. Faculty member has made superior contributions to the profession, to the university, to the college and to the basic mission of the department. (Level 4) High Performance – Performance exceeds the standards set by the department. Faculty member has made major contributions to the profession, to the university, to the college and to the basic mission of the department. (Level 3) Adequate Performance – Performance meets the standards set by the department. Faculty member contributes to the basic mission of the department. (Level 2) Marginal Performance – Performance falls below the expectations and standards set by the department in one or more – but not all – mission categories. Performance needs some improvement to be adequate. (Level 1) Unsatisfactory Performance – Performance is unacceptable and requires immediate improvement.
 7. The chair/coordinator will make appropriate comments and will mark an evaluation score for each section. In Section IV, the chair/coordinator will provide a summary comment and calculate an overall composite score based upon workload agreements stated at the top of the page.
 8. The completed form F2.08 must be submitted to the department chair/library coordinator by February 1. The chair's/coordinator's evaluation must be completed and given to the faculty member by March 1. By March 10, the completed form with all appropriate signatures must be submitted to the college dean. All forms are due to the provost by April 15. (Note: If any of the dates above fall on a weekend or holiday, then the due date is the first subsequent working day.)

9. The chair is encouraged to provide constructive guidance towards improving the performance of the person being evaluated. Indeed, comments should be comprehensive, specific, fair, and prescriptive.
10. Any appeals are to be indicated on the first page of the F2.08 and directed to the dean of the college/library. In case of an appeal, the dean will review the content of the F2.08 and may confer with all reviewers. The dean may also seek input from other faculty members. The *Faculty Handbook* (Section 43.4) includes guidelines under which the faculty development plan must be set in motion as a part of post tenure review.
11. A FACULTY and CHAIR PLANNING PAGE (Appendix I to Form 2.08), through which goals for the current calendar are formulated, must be completed annually by no later than April 10th (and ideally during the performance evaluation conference) for all probationary faculty and faculty in units which do not have approved performance measures for each Merit Reward level category. The department chair/library coordinator will provide each new probationary faculty member (and new tenured faculty in appropriate units) with a preliminary FACULTY and CHAIR PLANNING PAGE, to be completed within one month of the employment date. Planning pages may be revised at any time during the evaluation period by simple agreement between the faculty member and chair.
12. The faculty member should submit electronically only the F2.08 section of this document (i.e., pages 2-6, Sections I - IV, no appendices). The front page of the F2.08 contains all the signatures and should be submitted by hard copy.

12/1/04
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