

PENNS^TATE



Meetings of the Board of Trustees

January 16, 2015

Minutes

**MINUTES OF MEETINGS OF
BOARD OF TRUSTEES
VOLUME 284
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MINUTES OF MEETING
BOARD OF TRUSTEES
VOLUME 284
January 16, 2015

A meeting of the Board of Trustees was held in Dean's Hall of the Penn Stater Conference Center Hotel, University Park, PA, at 1:30 p.m. on January 16, 2015.

The following Trustees were present: Masser (chairman), Casey (vice chairman), Barron, Benson, Brown, Cotner, Dambly, Dandrea, Doran, Eckel, Goldstein, Harpster, Hintz, Jubelirer, Lord, Lubert, Lubrano, McCombie, Mead, Oldsey, Pope, Rakowich, Rucci, Shaffer, Silvis, and Taliaferro. Emeritus Trustees Jones and Myers were also present.

Present by invitation were faculty representatives Ansari, Kulikowich, and Strauss; student representatives Rhubarb and Shaffer; committee staff representatives Egolf, Salvino and Warner; and staff members Andrews, Basso, DiRaimo, Dunham, Gray, Guadagnino, Hanes, Hillemeier, Jones, Kirsch, Lokman, Mulroy-Degenhart, Pangborn, Poole, Sharkey, Sims, and Weidemann.

It is noted that an opportunity for public comment was provided on January 16, 2015 during a public session of the Board at 11:15 a.m. in Room 107 of the Penn Stater Conference Center Hotel. Four speakers were present to share their views and visions for the enhancement of Penn State:

Jeff Goldsmith, an alumnus of the University, provided remarks focusing on the betterment of Penn State.

Cindy Altland, a spouse and relative of alumni, spoke about leadership.

Barry Fenchak, an alumnus and staff member of the University, addressed the Board on its selection process.

Eli Kariv, a current student of the University, spoke about entrepreneurship.

Chairman Masser's opening remarks are included as follows:

"Good afternoon.

"I want to welcome Ira Lubert to the Board, who has accepted my invitation to fill the unexpired term of Karen Peetz, who resigned from the Board effective yesterday. Most of you know Ira from his prior service on the Board as well as his other tireless efforts over the decades on behalf of Penn State. Ira has served as a member of the Penn State Abington Advisory Board, the steering committee for the Grand Destiny fundraising campaign, and headed the search committee in 2012 that brought Bill O'Brien to Penn State. He has provided financial support for Penn State wrestling, the all-sports museum, the College of Health and Human Development, and both Penn State Abington and Penn State Great Valley. Ira received Penn State's Alumni Fellow Award in 1995, and in 2006 was honored by Penn State with the Distinguished Alumni Award. Last year, Drexel University honored Ira with its Business Leader of the Year award.

"In welcoming Ira, let me publicly thank Karen Peetz. Karen accepted a call to lead the Board when Penn State most needed her. While Karen's tenure on the Board was not long, during that time she chaired the presidential selection council that brought President Barron to Penn State, and provided leadership to the Committee on Audit and Risk, among other achievements. We're grateful for her many efforts to strive for educational excellence.

"To that end, we began the New Year with some excellent news. U.S. News and World Report's 2015 Best Online Programs ranked Penn State number one for best online bachelors programs from among 300 institutions throughout the country. Penn State's online programs offered through World Campus also earned top ten rankings for best on-line graduate programs in business, engineering, education, and computer information technology.

"I'm also pleased to announce that Steven Smith of Pikeville, Kentucky was named as the first recipient of the new World Campus military scholarship honoring Ryan McCombie. Steven's service with the U.S. Navy included a stint on the aircraft carrier US Enterprise in its deployment to the Persian Gulf in 2011. This scholarship recognizes the value of online education, while providing support for veterans, active duty military, reservists and National Guard members. I'm pleased that it also recognizes Ryan's commitment, given his efforts as chair of the military scholarship committee for World Campus and vice chair of our Outreach Committee.

"I also want to offer congratulations to Penn State's newest champions. First, the women's volleyball team swept BYU in straight sets to capture its seventh national championship. One week later, Penn State defeated Boston College in overtime in the Pinstripe Bowl. We couldn't have asked for better ways to end 2014.

"Now as we begin the New Year, I want to recognize President Barron, his administration, faculty, staff, students, and alumni for all you've done and will continue to do in the months ahead. Your daily efforts toward fulfilling Penn State's mission are a significant source of pride, and on behalf of the Board, thank you for your extraordinary commitment to Penn State.

The roll was called by Janine Andrews, Associate Secretary of the Board. Following the roll call, the Board voted to approve the minutes of the meetings of the Board held on October 28, and November 14, 2014.

President's Report

President Barron began his report by announcing the terms proposed for the settlement of the Corman/McCord versus NCAA. Following his report of the terms of agreement, President Barron asked for the support of the Board for a resolution on the matter. The following resolution was distributed to the members of the Board:

RESOLVED, that the settlement of the litigation filed by Senator Jacob D. Corman III and Treasurer Robert M. McCord against the National Collegiate Athletic Association and The Pennsylvania State University on substantially the terms described by counsel to the University to the Board of Trustees in an executive session on this date, with such changes as the President may agree, and as approved by the Vice President and General Counsel as to form, is hereby approved; and

RESOLVED FURTHER, that the execution and delivery of any such settlement agreements, or any other documents, instruments or agreements deemed necessary or advisable in connection therewith, shall constitute conclusive evidence of the President's approval within the authority approved and authorized hereby.

A motion to approve the foregoing resolution was made and seconded and unanimously approved by the Board. Following the approval of the resolution, Dr. Barron continued with his report.

Dr. Barron presented recommendations for addressing two imperatives: Access and Affordability, and Economic Development and Student Career Success. Over the past several months, committees have been examining these issues, and Dr. Barron's report focused on a summary of the key data, critical goals and specific recommendations, along with the budget and implementation plans for each imperative. He

ended with a recap of two main goals: 1) Focus on the cost of degree (timely completion), attrition due to finances and growth in student debt, and 2) Create a powerful path that enables Penn State to be a recognized as a driver of economic development and student career success.

Dr. Barron responded to questions and comments about the following items:

- Tuition increases
- Technology and course development
- Retention and graduation rates
- Student entrepreneurship

For the full text of Dr. Barron's report and companion slides, refer to Appendix I.

[Appendix I]

Provost's Report

In his January 2015 Provost's report, Dr. Nicholas Jones discussed the importance of research universities and the role of graduate students. Penn State has highly ranked research doctorate programs and high rankings for research and development expenditures as compared to other higher education institutions in the U.S. The provost shared examples of Penn State's areas of research excellence and ways that students benefit from attending a research university.

For the full text of Dr. Jones' report and companion slides, refer to Appendix II.

[Appendix II]

Reports from Standing Committees

Chairman Masser advised that standing Committees met in public session on Thursday, January 15, 2015, to consider any information or action items to come before the board today. Any action item considered and voted on in the Committee was included in reports by the respective Committee chairs. The full Board was asked to consider committee recommendations at the conclusion of each report.

A. Committee on Academic Affairs and Student Life

Chairman Abe Harpster reported that the Committee on Academic Affairs and Student Life met on Thursday, January 15, with a quorum of the Committee present.

The Committee received the following items for information:

1. Information on Undergraduate Programs
 - a) Energy, Environmental, and Mineral Economics Minor in the College of Earth and Mineral Sciences: Phase Out Program
 - b) Hospitality Entrepreneurship option in the Bachelor of Science in Hospitality Management at Penn State Berks: New Program
 - c) Human Factors and Design option, Business option to Psychology in the Workplace option, General option to Science option in the Bachelor of Science in Psychology at Penn State Erie, the Behrend College: New Option and Name Change
 - d) General Sociology and Community Organization and Social Services in the Bachelor of Science in Sociology at Penn State Harrisburg: New Options

The Committee received updates from administrative liaisons Nick Jones, Executive Vice President and Provost; Robert Pangborn, Vice President and Dean for Undergraduate Education; and Damon Sims, Vice President for Student Affairs. Nick Jones shared some points of interest from the draft theme working group report on transforming education. Damon Sims shared comments on the University's response to concerns expressed last month by students who had been the object of troubling social media postings following demonstrations on campus. He also updated the

Committee on continuing progress in the development of a cohesive campus recreation program; review of the University's alcohol policy; planning for an event to fill the weekend previously occupied by State Patty's Day; and an ongoing conversation aimed at strengthening the University's fraternity and sorority system.

Rob Pangborn provided an update on the 2015 admissions cycle and plans for expanded institutional scholarship programs. Rob also described the outcomes of the new Provost Award program and plans for extending this successful program to the 2015 entering class. He also shared with us information on scholarship initiatives, including a partnership with *Raise Scholarships*, allowing students to earn scholarship support toward tuition at Penn State by achieving various success factors while still in high school. Clark Brigger has been hired as the new Executive Director for Undergraduate Admissions.

UPUA President Anand Ganjam updated the committee on activities of the University Park Undergraduate Association. UPUA is working with various student groups and University departments to draft a comprehensive diversity report that will seek to provide an overview of information pertaining to diversity at Penn State. He also mentioned UPUA's commitment to ensuring the health and safety of students in areas such as sexual assault and mental health.

The Committee received a presentation from the leaders of the General Education Planning and Oversight Task Force, which was composed and jointly charged by the Faculty Senate Chair and the Provost in March 2013 to undertake a comprehensive review of the core curriculum that serves as the common experience for all Penn State students and has been in its current form for the past 15 years. A revised goal statement for general education was presented and will be proposed to the Faculty Senate.

Finally, Damon Sims, chair of the Sexual Assault and Sexual Harassment task force, charged by President Barron last summer, provided an update on the work of the task force throughout the fall semester. Recommendations to the President include the creation of a new Title IX coordinator position; an expectation that all University employees be trained to understand their reporting and other obligations in response to sexual misconduct; a University-wide climate survey on the issues; adoption of an investigative, rather than a traditional hearing model, for resolving cases; and, the development of increased educational and bystander initiatives to prevent these troubling occurrences. The President and other senior University leaders will now review and engage various constituencies in discussions about the report and its recommendations.

There were no actionable items presented to the Board.

Trustee Harpster then acknowledged Provost and Executive Vice President, Nicholas P. Jones, who introduced the following informational report:

Informational Report on Graduate and Professional Education

Jean Vasilatos-Younken, interim Dean of the Graduate School, shared information about graduate and professional education at Penn State, including enrollment data, recent trends and examples of our exceptional students.

B. Committee on Audit and Risk

Ira Lubert, Chairman of the Committee on Audit and Risk, reported that the Committee met on Thursday, January 15, with a quorum of the Committee present. The committee reviewed the matrix of committee rules and responsibilities and discussed the upcoming committee self-assessment process. The committee reviewed the engagement letter with Deloitte and recommends unanimously to authorize the engagement of Deloitte for the audit of university accounts. The committee heard from University Controller Joe Doncsecz, who reviewed the annual letter to Detroit addressing audit partner rotation, record retention of audit work papers, conflict of interest, and fraudulent influence.

The committee received a report on the current state of information technology from Kevin Moroney, Vice President of Information Technology Services, and his colleagues. The committee was provided with an update on the information technology landscape with an emphasis on current challenges in computer, network, and information security.

The committee received an update from the Subcommittee on Risk chair, Ted Brown, and University Risk Officer, Gary Langsdale, on the formation and anticipated function of the subcommittee. Director of Internal Audit, Dan Heist, then provided an internal audit follow-up report to the committee.

The Committee on Audit and Risk recommended that the Board of Trustees approve the following resolution:

RESOLVED, That the Officers of the University are authorized to engage Deloitte and Touche, Certified Public Accountants, for the audit of the accounts of the University for the year ending June 30, 2015.

A motion to approve the foregoing resolution as recommended by the Committee on Audit and Risk was made and seconded and approved by the Board. It is noted that Trustee Cliff Benson abstained from voting on this resolution.

C. Committee on Legal and Compliance

Ken Frazier, Chairman of the Committee on Legal and Compliance, reported that the Committee met on Thursday, January 15, with a quorum of the Committee present; Frazier noted that he participated telephonically and that Vice Chair Rick Dandrea facilitated the meeting. Regis Becker, Director of Ethics and Compliance reviewed the new Ethics and Compliance Metrics that the department has established to track progress. He also presented a brief summary of the key measures for the 2014 Ethics Hotline Reports and certain privacy in youth protection efforts underway at the University. Next, he updated the Committee on the efforts being made to implement the new requirements outlined in Pennsylvania Act 153 relating to employee background checks. Finally, the Committee met in privileged executive session, at which time they received a legal update from Steve Dunham, General Counsel for the University.

There were no actionable items presented to the Board.

D. Committee on Compensation

Carl Shaffer, Chairman of the Committee on Compensation, reported that the Committee met on Thursday, January 15, with a quorum of the Committee present; the Committee met in both executive and public sessions. The Committee approved one action item which modifies the Executive Life Insurance Program; the modification eliminates a two-year waiting period, and there are no new costs associated with this change. The Committee also received information on best practices in Presidential Performance Assessment.

There were no actionable items presented to the Board.

E. Committee on Finance, Business, and Capital Planning

Chairman Mark Dambly reported that the Committee on Finance, Business, and Capital Planning met on Thursday, January 15, with a quorum of the Committee present.

1. Information Items –
 - a) Buckhout Laboratory HVAC and Roof Replacement, University Park
 - b) Emergency Room Pediatric Area Renovations, The Milton S. Hershey Medical Center
 - c) Ultrasound Area Renovations at 30 Hope Drive, The Milton S. Hershey Medical Center

- d) Magnetic Resonance Imaging Equipment at 30 Hope Drive, The Milton S. Hershey Medical Center
 - e) Relocation of MFM and REI Services at 35 Hope Drive, The Milton S. Hershey Medical Center
 - f) Campus Redundant Steam Line, The Milton S. Hershey Medical Center
 - g) Purchase of Property at 505 East Wopsonnock Avenue, Altoona
 - h) Sale of Property at 1211 Deerfield Drive, State College
 - i) Naming of Rooms, Portions of Buildings, and Plazas
 - j) Status of Major Construction Programs and Borrowing
 - k) Summary and Designation of Gifts Received by the University
2. Action Items –
- a) Summary of Revisions to Existing Scholarships, Fellowships, etc.
 - b) Acknowledgement of Endowments and Other Major Commitments

The Committee received reports on selected construction projects from Ford Stryker, Director of Physical Plant; a briefing on risk oversight related to overall financial health and credit worthiness by Senior Vice President for Finance and Business/Treasurer, David Gray, and University Controller, Joe Doncsecz; and a report on Penn State sustainability programming.

Chair Dambly continued with his introductions of Agenda Items for consideration and approval. Agenda Items 2 and 3 provided proposed appointments of designers for the Agricultural-Engineering Building renovation and the Lasch Football Building locker room, equipment room renovations, all at University Park. The Committee approved these resolutions by unanimous vote.

Agenda Item 4 proposes the appointment of two design building teams for energy conservation related projects at Penn State University. Agenda Item 5 proposes the appointment of the design build team for the Research Building West renovations at University Park. The Committee approved these resolutions by unanimous vote.

Agenda Items 6 and 7 are proposed final plans and authorization to expand funds for Housing and Food Services Warehouse and Bakery Expansion at University Park, and the Baker Building renovation at Penn State Beaver. The Committee approved these resolutions by unanimous vote.

Agenda Item 8 proposes the acquisition of the St. Joseph Regional Health Network of Reading, Pennsylvania. Information regarding this item was discussed during the morning, executive session. At its December 19, 2014 meeting, the Committee approved this resolution by unanimous vote.

Agenda Item 9 proposes an extension of the development services agreement with the Research Park Management Corporation at Innovation Park. Item nine was also approved by the Committee at its December 19, 2014 meeting by unanimous vote.

The Committee on Finance, Business and Capital Planning recommended that the Board of Trustees approve the following resolutions:

1. RESOLVED, That the conditions governing certain existing scholarships, fellowships, awards, and similar funds previously established at the University be revoked and that the Officers of the University are authorized to put into effect the revised regulations as requested by the donors.
2. RESOLVED, That the Board of Trustees gratefully acknowledges the generous contributions of the many friends of the University in support of endowments, funds, and other major commitments as reported to

FURTHER BE IT RESOLVED, That the Officers of the University are authorized to convey the Board's appreciation to these generous benefactors who provide opportunities for many students to receive a quality education.

3. RESOLVED, That the Officers of the University are authorized to employ EYP of New York City, New York, to design the Agricultural Engineering Building Renovation, University Park.

4. WHEREAS, The interview process has been conducted by the University's Office of Physical Plant.

RESOLVED, That the Officers of the University are authorized to employ Populous of Kansas City, Missouri, to design the Lasch Football Building Locker/Equipment Room Renovations, University Park.

5. WHEREAS, The Office of Physical Plant employed an open and inclusive process to select the most qualified designers for Energy Savings Program projects.

RESOLVED, That the Officers of the University are authorized to employ Burns and McDonnell, of Kansas City, Missouri, and The Efficiency Network of Pittsburgh, Pennsylvania, to design and build Energy Savings Program projects for the University.

6. RESOLVED, That the Officers of the University are authorized to employ The Efficiency Network of Pittsburgh, Pennsylvania, to design and build the Research Building West Renovations at University Park.

7. RESOLVED, That the final plans for the Housing and Food Services Warehouse and Bakery Expansion at University Park, as designed by Kinsley Construction of York, Pennsylvania, are approved.

FURTHER BE IT RESOLVED, That authorization to expend funds to accomplish the project are approved in the amount of \$15,500,000.

8. RESOLVED, That the final plans for the Baker Building Renovation at Penn State Beaver, as designed by Stantec, Inc. of Butler, Pennsylvania, are approved.

FURTHER BE IT RESOLVED, That authorization to expend funds to accomplish the project are approved in the amount of \$9,500,000.

9. RESOLVED, That the Board of Trustees approves the acquisition by Penn State Health of St. Joseph's Regional Health Network of Reading, Pennsylvania, upon the terms and conditions presented to the Board of Trustees in executive session this same day, subject to all necessary regulatory approvals and consents.

BE IT FURTHER RESOLVED, That the officers of the University are authorized and directed to take such steps as are necessary to make effective this resolution.

10. RESOLVED, That the Board of Trustees approves the extension of the Development Services Agreement between the University and the Research Park Management Corporation (RPMCo), whereby RPMCo

provides management, supervision and coordination of development at Innovation Park, to January 31, 2016.

BE IT FURTHER RESOLVED, That the Officers of the University are authorized and directed to take such steps as are necessary to make effective this resolution.

A motion to approve the foregoing resolutions as recommended by the Committee on Finance, Business and Capital Planning was made and seconded and approved by the Board.

F. Committee on Governance and Long-Range Planning

Chairman Keith Eckel reported that the Committee on Governance and Long-Range Planning met Thursday, January 15, with a quorum of the Committee present. Chair Eckel extended an invitation to all Trustees to provide suggestions for future Governance Committee discussions. Associate General Counsel, Frank Guadagnino, reviewed procedural changes effective with this year's election of Trustees representing agricultural interests. Faculty Senate Chair Jonna Kulikowich, and her colleague, Roger Egolf, provided a review of the guidelines to support the Academic Trustee election process. Trustee Allie Goldstein, with the assistance of the student leaders, provided a similar review for the guidelines to support the Student Trustee election process. The Committee voted unanimously to approve these guidelines.

Frank Guadagnino provided an overview of a transitional matter required for the first year of the At-Large Trustee election process as set forth in the *Standing Orders* approved by the Board in November 2014. The Selection Group on Board Membership for At-Large Trustees is to be composed of five, seated Trustees: one each from the Alumni-Elected Trustee group; the Business and Industry Trustee group; the gubernatorial appointees; the Agricultural Trustee group; and one from the group of Trustees comprising the Student Trustee, the Academic Trustee, the Alumni Association Trustee, and the At-Large Trustees. Given that prior to the 2015 election in May there will be no seated Trustees in that latter group, an accommodation is needed to fill the fifth seat on the selection committee. The Committee recommended, by a vote of 8 to 1, that the current Chairman of the Board serve as the fifth member of the Selection Group for At-Large Trustees for the 2015 election only.

The Committee recommended by unanimous vote that the Board appoint Peter Tombros to serve the unexpired term of Jim Broadhurst on the Penn State Milton S. Hershey Medical Center's Board of Directors.

Committee Vice Chair Rick Dandrea led a discussion on governance topics including the procedure used for calling special meetings of the Board; rules for conducting Board and Committee meetings; and the role of Emeritus Trustees. Finally, Vice President for Administration, Tom Poole, provided an update on the Presidential Search Review Task Force which is being led by Vice Chair Kathy Casey.

The Committee on Governance and Long-Range Planning recommended that the Board of Trustees approve the following resolutions:

1. WHEREAS, The process for selection of the At-Large Trustees includes a Selection Group on Board Membership for At-Large Trustees; and

WHEREAS, For purposes of the 2015 implementation year a membership designation will need to be made for the Selection Group on Board Membership for At-Large Trustees to include one Trustee from among the group of the Student Trustee, the Academic Trustee, the Trustee serving ex officio by virtue of his or her past presidency of the Penn State Alumni Association and the At-Large Trustees, if any; and

WHEREAS, none of the aforementioned Student Trustee, Academic Trustee, Trustee serving ex officio by virtue of his or her past presidency of the Penn State Alumni Association or At-Large Trustees are currently seated on the Board;

THEREFORE BE IT RESOLVED, That the Chair of the Board of Trustees will serve as the fifth member of the Selection Group on Board Membership for At-Large Trustees for the 2015 election.

2. RESOLVED, that Peter G. Tombros be appointed as a member of the Board of Directors of The Milton S. Hershey Medical Center for a term ending June 30, 2016.

A motion to approve the foregoing resolutions as recommended by the Committee on Governance and Long-Range Planning was made and seconded and approved by the Board.

Trustee Allie Goldstein provided a motion that the Committee on Governance and Long-Range Planning investigate the need for, and assist with the implementation of a Board self-assessment. It was moved and seconded and the Board voted to approve the motion.

G. Committee on Outreach, Development and Community Relations

Paul Silvis, Chairman of the Committee on Outreach, Development and Community Relations, reported that the Committee met Thursday, January 15, with a quorum of the Committee present. The Committee discussed ways in which our community could put a spotlight on the issues and opportunities associated with President Barron's six major initiatives for Penn State. Vice President for Strategic Communications Lawrence Lokman and team member Claire Poletti previewed a new storytelling initiative to promote Penn State's research education and service programs; the initiative will be web-based and involves creating a series of high production videos that can also be used on our social media channels like YouTube, Facebook and Twitter.

The Committee received a report from Michael DiRaimo, Special Assistant to the President for Governmental Affairs, and Amanda Wintersteen, Assistant Director of Federal Relations, which reviewed federal funding for the University. Vice President for Outreach and Vice Provost for Online Education, Craig Weidemann, reported on Penn State's earning the 2015 Community Engagement Classification, a recognition from the Carnegie Foundation for the Advancement Teaching which speaks to the meaningful ways in which Penn State connects the University's rich academic resources with our various communities across the state, country, and the world.

Kay Salvino, President of the Penn State Alumni Association, reported that the PSAA, in concert with its colleagues in the Office of the University Development, has sponsored receptions in major cities featuring President Barron in order for him to speak about his initiatives. Other areas of support include the 2014 Alumni Opinion Survey; the publication of the fourth edition of *Penn State's Culture of Academic Excellence*; the President's Concert; and the City Lights series.

Rod Kirsch, Senior Vice President for Development and Alumni Relations, provided an update on fundraising progress, including information on several strategic taskforce groups which are being formed to assist in the preparation of the University's next comprehensive fundraising campaign. Additionally, two University-wide committees are being formed: the Communications and Marketing Committee will advise the Office of Strategic Communications and the Development Office on a wide range of communications and marketing matters, while the Parents Philanthropy Volunteer Committee will review the fundraising priorities, establish appropriate fundraising and programmatic goals and development, and messaging and communications to potential parent donors.

The Committee on Outreach, Development and Community Relations recommended that the Board of Trustees approve the following resolution:

1. RESOLVED, that the Board of Trustees approves President Eric J. Barron's appointment of Michael J. DiRaimo to the position of Vice President for Governmental Affairs effective January 16, 2015.

A motion to approve the foregoing resolution as recommended by the Committee on Outreach, Development and Community Relations was made and seconded and approved by the Board.

Authorization to Confer Degrees

The Board of Trustees voted to authorize the President of the University to confer degrees at the end of the 2015 Spring Semester, Summer Session, and Fall Semester upon those students who have completed at those times the necessary requirements.

Proposed Date of Election of Trustees by Delegates from Agricultural Societies, by the Alumni, for Business and Industry, At-Large, Faculty, and Student

The Board of Trustees voted to approve May 7, 2015 as the date for the delegate election of agricultural trustees, and for counting the ballots in the alumni election; and approved May 8, 2015 as the date for the election of business and industry, at-large, faculty, and student trustees.

Proposed 2016 Dates for Meetings of the Board of Trustees

The Board of Trustees voted to approve the proposed meeting dates for 2016 as follows (unless otherwise noted, all meetings will be held at University Park):

January 14-15, 2016	(Thursday-Friday)
March 17-18, 2016	(Thursday-Friday) – Hershey
May 5-6, 2016	(Thursday-Friday)
July 21-22, 2016	(Thursday-Friday) – Penn State Wilkes-Barre
September 15-16, 2016	(Thursday-Friday)
November 3-4, 2016	(Thursday-Friday)

Selection of Recipients of the 2015 Distinguished Alumni Award

Keith E. Masser, Chairman, presented the recommendations from the Distinguished Alumni Award Screening Committee meeting on January 15, 2015.

Ballots were distributed and, following the voting, were counted. Chairman Masser reported that the following eight individuals had been selected as recipients of the Distinguished Alumni Award for 2015:

Richard H. Bard
Dennis S. Charney, MD
Donald Devorris
Lynn A. Dietrich
Robert E. Hillman
Jacqueline C. Hinman
Patrick E. Malloy, III
Henry Tomes, Jr.

Board of Trustees
1/16/2015

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Announcements by the Chairman of the Board of Trustees

Chair Masser called for other matters to come before the Board. There being none, the meeting was adjourned at 3:45 p.m.

The meeting is available in its entirety at <https://www.youtube.com/watch?v=uWTB7MTXTGE>

Respectfully submitted,

Janine S. Andrews
Associate Secretary,
Board of Trustees

Remarks from President Eric J. Barron
Meeting of the Penn State Board of Trustees, University Park
January 16, 2015

“Thank you Mr. Chairman. The first thing I would like to do is to announce terms proposed for the settlement of the Corman/McCord versus NCAA. These terms are as follows: the parties are obviously the Treasurer, Senator Corman, National Collegiate Athletic Association, and Penn State University. The plaintiffs, NCAA and Penn State, agree that the July 23, 2012, Consent Decree is repealed. The effect of this agreement will include, but not be limited to, \$48 million will be paid by Penn State to the Commonwealth under the Endowment Act. And two, elimination of all punitive sanctions against Penn State. That includes removal of probation and the return of the wins for Penn State to 409. All existing litigation among the parties will be ended with stipulation of dismissal with prejudice, and all claims that could have been brought between the plaintiffs and the defendant in this case will be resolved.

“There is a second component of this agreement between Penn State University and the NCAA. In this agreement, Penn State acknowledges that the NCAA has a legitimate and good-faith interest and concern regarding the Jerry Sandusky matter. Penn State also commits \$60 million in total to activities and programs that includes--\$60 million includes the \$48 million paid to the Commonwealth, so this is an additional \$12 million. That this money will be committed within the State of Pennsylvania and at Penn State for the prevention of child sexual abuse, the treatment of victims of child sexual abuse, and the study of issues related to child sexual abuse. As part of this commitment, in addition to the amounts Penn State is committed to pay under the Endowment Act, Penn State will create, as soon as possible--as soon as practicable after July 1, 2015, an appropriate form of endowment at Penn State in the single lump sum of \$12 million for these purposes. Our intent is to have this be an endowment that will support child abuse programs for the long-term. Penn State will advise the NCAA regarding activities and programs that are supported by that endowment.

“Penn State and the NCAA will then enter into a new athletics integrity agreement that, with concurrence of the Big 10--which is a party of the athletic integrity agreement--we will enter into a new agreement that deletes or limits part 5, the punitive component, and that includes the recitation of best practices with which the University is committed to comply, and that provides for the University to continue to retain the services of Senator George Mitchell and his firm, in order to support the University's activities under the AIA and in the areas of compliance, ethics, and integrity. And we have, of course, a standing superb program of compliance at this institution, and the institution is fully committed to that continuation. Those portions of the athletic integrity agreement will be the subject of negotiation between Penn State, the Big 10, and the NCAA.

“A short while ago, at about 1:20, as I believe is his right, Senator Corman released this settlement and stressing the fact that the Consent Decree has ended, that the wins are returned, that the punitive aspects of the Consent Decree are ended, and also focused on his commitment in the State of Pennsylvania on the prevention of child abuse. I very much see myself in full support of his comments and his commitments along these lines. So, because of the importance of this item, I seek the support of the Board for the following resolution.”

RESOLVED, that the settlement of the litigation filed by Senator Jacob D. Corman III and Treasurer Robert M. McCord against the National Collegiate Athletic Association and The Pennsylvania State University on substantially the terms described by counsel to the University to the Board of Trustees in an executive session on this date, with such changes as the President may agree, and as approved by the Vice President and General Counsel as to form, is hereby approved; and

RESOLVED FURTHER, that the execution and delivery of any such settlement agreements, or any other documents, instruments or agreements deemed necessary or advisable in connection therewith, shall constitute conclusive evidence of the President's approval within the authority approved and authorized hereby.

A motion to approve the foregoing resolution was made and seconded and approved by the Board. Following the unanimous approval of the resolution, Dr. Barron continued with his report

"I've been focusing on six imperatives that I think will have a substantial impact on this University. Access and affordability, economic development and student career success, student engagement engaged scholarship are all three topics that I have presented to you, and in the future we'll do diversity and demographics, technology and curriculum development, and as we go through our strategic plan, excellence. We've gotten to the point where the number of task forces that we are now ready to act on the first two of these, and to begin to do a set of programs that will advance access and affordability of this institution and will promote economic development job creation and student success. And I would like to go through those now. I'm going to start first with access and affordability, enhanced educational pathways for our students.

"We know we have certain strengths that in some ways would allow us to not think about these topics of access and affordability. After all we had record applications last year, 127,000 people who wanted to come in our door. We are at a pace that exceeds that by about 5,000 students at the present moment. This is an extraordinary statement about the value proposition of this institution. And in addition, the first and family students tightly correlated with need-based students, is also growing; 39% of Commonwealth campuses and 21% at University Park. Of course we also raised \$530 million in student scholarships as part of the capital campaign. We also know that our student default rates at about 6.4% are more than 2% below Pennsylvania averages and 3.6% below the national averages. And in fact, our student debt has stayed at the same level for more than a decade, with about two-thirds of our students that are borrowing money to get their degree. But we're not satisfied, and part of the reason why we're not satisfied is when we dig in, this is just a little bit of reminder of the data from the first time I presented. When we dig in, we see that student debt has grown from about 20,000 per student that borrowed money to about 35,000 today, a decade growth that is something we're not particularly proud of.

"Student default rates have also grown every year, since the recession began. If we start to look, we realize a 3% tuition increase is in fact small compared to the number of the students we have going an extra year or a second year, the class of 2000 and entering class of 2007, to go years in five and six borrowed \$23 million to complete their education. There are also significant differences in graduation retention and graduation rates for students that are financially disadvantaged. So that tells us that the students that are financially disadvantaged are taking longer to graduate or borrowing money and not graduating, or taking longer to graduate and pay more. Nothing demonstrates this better than this chart that compares family income with the graduation rates for all students, six-year graduation for all students at UP and at the Commonwealth campuses, and so what you're looking at there is for University Park, if your family income is less than \$18,486 your six-year graduation rate is 50%; 77.6% if your family income is greater than \$88,000. And that difference grows with family income. So this is, in fact, our critical goals, to focus on, first, the topic should not be that 3% tuition increase, in my opinion, it should be the increase retention in graduation rates. The greatest tragedy is a student loan and no degree. It should be focused on decreasing the total cost of a degree, time-to-degree is a major factor, paying for more than four years is a second greatest tragedy, because then you pay one more year, you're paying \$17,000 you don't have a job and you have housing and food. And so, that's considerably more significant than a \$400 tuition increase. And we must also decrease the rate of borrowing and decrease the attrition due to financial need for our need-based students, which takes longer to graduate therefore their education cost more, they have lower retention rates and higher loan rates.

"So this is our objective that I presented when I presented this topic to you before. Provost Nick Jones established Enhanced Education pathway Committee. You see the two Chairs, and also see the

members of the committee. They've worked long and hard on this particular topic with a goal of highest quality education at a cost that insures access. Access and affordability makes for a great public university. I would like to go through the first five of the recommendations, and also additional action take that will be taken by the University and the eventual approval of the Board. I don't think we're done yet. Many of these would be done as a pilot, to see whether they work.

“Recommendation one is math, English, and foreign language prep for incoming students. The goal is remediation of deficiencies so students begin college placed at the appropriate level for their major as supposed to be in the wrong class stopping and having to go back and then go up the ladder or starting at two low of a level and continuing forth, this can save students a considerable amount of time and distress. So it affects time-to-degree, efficient placement, and grade point average. And it is focused on all students that come in with high school deficiencies. The idea is to use the summer bridge program and assessment and learning and knowledge basis, ALEKS, as an initiative for online noncredit World Campus course with an exit exam to determine student placement; a much more efficient and effective way to help a student. It also provides for facilities and faculty for mentoring and offers the students the opportunity to have credit by exam. So this does accelerate their degree earning as well as creating less stress and a shorter and probably higher grade points, in things like Math. Cost to the institution is truly retaining the faculty and facilities over the summer and possibly some student services money. There's almost no cost to the student because basically you've got a very minimal cost for ALEKS and credit by exam.

“Recommendation two is summer school on campus employment, for first and second-year students. The goal is to provide employment and educational opportunities during summer sessions to students who can work while making progress toward their degree. At the beginning, it can address remediation issues but it also allows them to earn credit and in the second year to--second summer, to earn even more credit. Our target audience is at-risk students, low-income, first generation, provisional. The impact should be significant, on retention, graduation rates, the cost of degree, foreign rates, and it will also significantly impact the success of at-risk students. The idea is to pick campuses and try this as a two to three-year pilot program based on their target audience, their ability to provide meaningful employment opportunities and the viability of the business model. The notion is the eligible student can work 20 hours on campus or could be within the community if you have partnerships, earn 6 credits as a freshman and 12 credits as a sophomore. We anticipate the cost to the institution to be about 3 million for student wages, but it's very likely could be offset by the fact that we have many, many opportunities for which we want to employ students. And the cost to the student could be tuition but our expectation is this can be offset with scholarships. So this truly takes that population of students that aren't graduating. And kick starts them in the summer, perhaps, removing deficiencies and then gives them a substantial boost while being employed at the end of their freshmen year in summer and they're gaining 18 credits on their progress towards degree while being employed.

“The third recommendation is focused on STEP programs, student transitional experiences program, but this is expanded. The goal is to provide financial academic and social support for students who changed campuses to ensure satisfactory academic progress. We don't want to really have that dip, we'd like to make sure the time of graduation is the same and so this is targeted at students who are making at junior year transition to University Park. We expect there could be some reduction in the time to degree and we certainly would anticipate that this would yield higher graduation rates for our students. So this is basically an implementation expanding the program that we have now and adding additional majors, guiding students as a complete two courses to meet degree requirement, adding a co-curricular component to engage students in campus activities and career resources, and add year-round staffing to provide mentoring and consistent support. The cost to the institution is instructional support, program coordinator and a team student wage employees, the cost to the student, tuition and housing but with a target for philanthropy to help us reduce those costs through scholarships.

“Recommendation four is a focus on student and family financial literacy and well-being. The idea is to improve the understanding of all of our students of the cost of an education and the long-term consequences of debt, expand and refine existing financial literacy programs and ensure their availability at all campuses. It's targeted at all undergraduate students and we expect this may have a significant decrease in student loan debt. So the idea with the implementation here is to communicate the financial consequences of completing only 12 credits. Basically if you only do 12 credits, you will not graduate in four years, and you will have that whopping big \$17,000 tuition increase. It is just not possible to have it be any other way. So to focus on marketing, eLion messages, better advising, you do not want to be taking 12. You may think that's easier but it's going to cost you significantly. And even regularly update students on loan status debt so they don't borrow more than they need. We have one experiment already at the University of Indiana, by telling students the length of their loans and their payment when they would graduate. The students borrowed in a single year \$20 million less. This is a suggestion that we do have a number of students that are doing lifestyle borrowing. And so, financial literacy will help people decide, 'No, I don't want to borrow that much money and pay that back for the next 20 years after I graduate.' So, we believe we can develop and implement an online education module on financial literacy prior to the school year for parents and students so we do a better job. The cost to the institution is very little, the cost to the student is none, and there's great potential for them to save considerable amount of money.

“Action five is to decrease the tuition rates that we proposed in the initial submission of our budget ideas to you. The goal is to increase access and affordability at Commonwealth Campuses that target audience, the students at 14 campuses. The impact is increased accessibility at campuses with higher percentages of need-based students, retention, graduation rates, and lower loan rates. Our proposal is to bring to you at the appropriate time and after we have a better understanding of the budget, our proposal is to have eight of our campuses have for next year a zero percent tuition increase. That is at Shenango, Beaver, DuBois, Fayette, Greater Allegheny, Mont Alto, New Kensington, and Wilkes-Barre. In addition, we're going to—we're proposing to drop the tuition rate to increase to 1.8% for six other campuses, Brandywine, Hazleton, Lehigh Valley, Schuylkill, Worthington Scranton, and York. The campuses at the bottom will be at a 2.4% rate. The cost to the institution, well, this will be interesting because it depends whether we affect enrollment and how we do affect enrollment. So it's quite possible we will realize unanticipated benefits for these students in terms of enrollment numbers and the pressure on the institution financially may be a lot less than we might think. Of course, the cost to the student is much less. And so, I think that will be a great development.

“In addition to that, we have an added action number six. We have been giving out Provost's Awards. The provost had budgeted \$20 million for summer and fall of 2014. He is proposing to increase that to \$25 million for the coming year. This is merit and financial need criteria for \$4,000 per student, which is also coupled with the program called 'Raise Me' in five high schools in Philadelphia where you can earn credits to get these scholarships. So it's an incentive for students to work toward a scholarship. We have already discovered that our direct costs are highly mitigated by higher yields of strong students. And so, higher yield rate is also a good outcome here in terms of the institution. This has the potential to be neutral. It even has the potential to be positive if you get recruitment rates up high enough for these students that may be need-based but they're very hardworking, very bright, and very successful. Of course, this will increase accessibility, it already has. The Provost has demonstrated that this is an exceptional program and you have higher GPA students, lower loan rates because of the scholarship funds and a much higher completion rate.

“The institutional investment that I'm talking about in access and affordability in six major initiatives, one of which is an enhancement, is an additional \$11 million annually that will support students and their families by decreasing the cost of the degree for many families by improving graduation rates, enhancing student success, all of those will help us reduce student and family debt. And the largest impact of these programs will be on our need-based students. So I will end that particular component, I think it's a significant investment. The wonderful thing about the recommendations from the committee is

that they're targeted at these specific problems. That's really what we want to solve those problems of five and six years and high debt loads and to focus on the graduation rate and retention rate of need-based students. I'm quite excited about it. I'm also very pleased that the committee has many things that they're looking at but they believe these, especially some of them in pilot form, will be the most effective for us to continue to invest money and know that as this \$11 million grow, we will be increasingly successful.

"I would now like to talk about the second of these topics. I realize I'm putting a lot of numbers and a lot of slides up here, but I think these are quite exciting developments that are bubbling up from our faculty and staff and our leadership. Economic development, job creation and student career success we are calling *Invent Penn State*. *Invent Penn State* is a banner that we hope will invite our alumni and communities to participate with us to strengthen economic development, job creation and student career success. So, this tagline other than *Invent Penn State* is let's turn great discoveries into a great economy together. And we have a group of initiatives. First a quick reminder of what I presented to you when I first introduced this topic as an imperative. This is an institution that for multiple years has had in excess of \$800 million and annual research funding since 2011. And in the year just finished we will again be above that mark. Extraordinarily strong research even in the face of declines in federal budgeting in the areas for which we typically get our largest funds. We are frequently cited as the largest single contributor to the state's economy. I've said I don't want to talk about economic impact. I want to talk about this institution as an economic driver. As an impact, it's more than \$16 billion annually and that's a five-year-old study. It has become a top place to recruit students; in every business magazine they cite the value of recruiting our students and we have many, many companies limiting the space in which they're recruiting, and focusing on a few institutions and they're always including Penn State University.

"Even though we rank in the top 20 of all research universities, we're only 62nd in getting our intellectual property into the marketplace. We have an opportunity here to work harder, to get our ideas into the marketplace. And in the process, while teaching our students at the cutting edge to have our students follow that intellectual property into the marketplace in top jobs. So our goal is to create a powerful path that enables Penn State to be recognized as a driver of economic development, job growth and student career success. This effort is being led by Neil Sharkey who is the Vice President for Research. The thematic areas that we're focused on in fulfilling this mission for the University. We want to transform our ability within the University to promote economic development. We want to increase the external visibility of what we do so that people see what we're doing and they can tap into it and support it through investment. We need to create the capacity and capability around us to do startups and to attract companies and to have many of our students that graduate feel that this state should be their home and State College and Erie and all the other places in the state are areas for which they want to build their companies. That is what our objectives are. Oops, I forgot one. We also want to make sure that we enhance an already strong path to student career success. Having the greatest career services in the country is something to be proud of. Seeing all those business magazines talk about this is a place to be recruit, those are wonderful stories. But the Penn State way is not to be satisfied but to do better and better and be stronger and stronger.

"So, in transforming our ability to promote economic development, there are a group of categories there and I can't really tell that they're color coded anymore so I will try to do it. Entrepreneurs and residents, multiple hires, individuals that have built companies, experience with patents, licenses who will come here and be faculty, and having this be across the spectrum is labeled SR. It's part of our student request and it's a target for philanthropy. Partnerships across colleges and programs. The idea to join an inventor with an entrepreneur, to match up students and faculty in the College of Business with faculty and students that are in other areas for which we are creating development. The University today is committing \$1.5 million annually for our faculty with their students to write proposals for those moneys as long as it intersects the entrepreneur with the person and faculty with an idea. This is incentivizing internally in this institution those partnerships that will help take ideas closer to the marketplace. We're also intending to focus faculty hiring in areas of distinct potential economic impact. And there are many in

the state that makes sense and this as, you know, was also part of the state budget request that we put forward that you approved. We want to ramp up the capability of the Office of Research so that we can ensure rapid response and advancement of economic development priorities. Patents, licensing, helping with startups, this is also part of our state request. But even outside the state request, and I don't have the exact number, the Vice President for Research has been busily hiring individuals so that that office is not a bottleneck in any way, shape or form but is an office that encourages supports and helps make this process easier and faster. We're also proposing in this part of changing the internal culture of the institution, we're proposing to create two monetary University-wide awards that recognize successful invention disclosures, patents, licenses, startups for student career success efforts of our faculty. And the Faculty Senate is at--with my appreciation--looking at the best ways that we can reward and encourage faculty through this process of award and recognition. It's also I think a great topic for philanthropy to have named awards for our faculty that support job creation and that support student career success.

"The second topic within *Invent Penn State* is to create a University-wide intellectual property fair, a place that can highlight the innovation that is across this University; every campus to be involved in this type of activity. It's a venue for emerging ideas, for promising R&D effort, and for new products and allows essentially our faculty and students to set up shop and have people see all the wonderful things that are occurring in this environment. Again, this is something that might have potential sponsors. But we're announcing today that we're committing \$100,000 annually to make sure that we have an IP fair in this institution. A part of this will be a competition for startup funding. Today in this University within individual colleges you might pick up \$500 as part of a competition or \$2,000 to--for a competition to help you kick start your company. We all know that's a small amount. So we're committing here today to add \$250,000 annually as competitively awarded. This needs to be 2 or 3 times that amount, but we're going to make sure that those really bright ideas that are coming out of this institution, they can get the type of support that allows them to be successful. It will also obviously bring a lot of visibility to the intellectual property of this institution because we will start touting the award winning ideas, those ideas coming from our faculty and students that are truly innovative and exciting and worthy of investment. In addition to that, we will follow through on the notion of creating a Penn State branded platform for investors. This basically is an electronic venue where you can put up a business plan, and the design is to attract significant investment, angel investors, and venture capital for the ideas that are there that will allow the ideas coming out of Penn State to be funded and supported by investors. The idea is first to open this to our community members and to our alumni. And then after a period of time, to use commercial outlets that can attract worldwide investors. Many, many times young entrepreneurs, faculty tell me, 'I have this great idea, I just don't know how to attract capital.' And many times it doesn't take that much capital to begin. And of course we have a country and a world that's increasingly interested in this type of investment of ideas that who knows where they might end up. This allows us Penn Staters to have access to that type of interest. It also has one other incredibly powerful component. And that is another way for our alumni and friends to see how great this institution is, because imagine signing up to this webpage as an investor, as a Penn Stater, as an alum or as a community member anywhere in this state and seeing every time you look the bright ideas and innovative concepts that are coming out of this University. Frankly, I think if we do this well it'll transform the way people see Penn State, because they will constantly be seeing ideas and innovation. We have committed and are announcing today \$350,000 per year to create this platform and maintain that platform to ensure that our faculty and students can be out there successfully attracting angel investment and venture capital.

"The third component is the capacity and capability to develop startups and attract companies around our campuses. One notion here, kind of entrepreneurial boot camp capability, is to purchase or renovate space adjacent to campuses to create space for startups including winners of competitions. So this is the way you should imagine it. You've just been through the IP fair. You've been awarded \$50,000 to help create your startup. And we're saying by the way, here's the space, cross the street from this campus, the space is free, the College of Law helping us with legal aid and helping you set that up so you're not trying to do it yourself for spending money on a lawyer, perhaps the College of Business is mentoring you on how best to set up your company in this particular process. We have alumni who may

be mentors and residents. This is something that was successfully tried at the University of Michigan where our alumni are coming in, or friends coming in for a day a month or two days, or stopping in and their entire purpose is to assist our faculty and students in creating their startup. So think of that as kind of a boot camp opportunity. We're not charging rent for this, for giving people space. It could be a desk, it could be a suite of offices, but the whole idea here is to help them launch so they're not thinking of spending large amounts of money for a space or contemplating how am I going to write that legal plan, how am I going to do that online myself and instead they're focusing on their innovation because they're getting assistance in this boot camp. The University will commit one-time money up to 20-months--\$1 million for renovation adjacent to University Park so that our faculty can cross the street and have that space and have that capability. In addition to that, we're announcing \$300,000 in funds that can be used for annual leases for the Commonwealth Campuses to partner with their communities. We're expecting the Commonwealth Campuses that, with community participation, to be able to write a proposal for these funds that will allow them in that partnership to lease space adjacent to their campuses as part of their community for which students and faculty can gather with community leaders in the same type of mode. It could be social capital. It could be a new enterprise. If you've seen New Leaf in State College, this is perhaps the model that this might work at. I want to stress that in focusing on this particular topic, we're not talking about University Park. We're talking about energizing job creation, economic development and student career success throughout the Commonwealth of Pennsylvania. Six pilot projects will be funded through that process.

"Continuing this mode of creating capacity capability to develop startups and attract the companies, the VP for Research has committed a \$2 million capital outlay to gather the space that will allow us to graduate people from a boot camp and pay a modest amount of rent as they begin to grow and be successful. The key here is that today you jump from your idea to an Innovation Park where the lease fee and pass through are \$31 a square foot. That's not going to attract a startup. We need a whole path here. From the free part in the boot camp; to that inexpensive space; to I'm going great guns and I'm going to lease bigger space and by the way; you're going to see my advertisements out there on local, local TV. Innovation Park, we would like to increase the visibility, very little cost of what's going on there. Anytime I ask somebody who's on it--who's occupying Innovation Park, they don't answer the question because we don't take successful young companies or groups that are coming in to our community and wave the flag to say this is a hub of innovation in our town, so we need to work to change that. We're also going to look at how it is that we can identify specific matches of corporations to the interest and capability of our faculty and institution. The education sector is certainly one where we could imagine attracting the education sector to this town. After all, as you all know, the World Campus was designated as the number one undergraduate online education in the world. We ought to be able to take advantage of that and attract people that are interested in this sector of the economy and have them sitting next to the people that have developed such a tremendous program and watching our own graduate move in to that sector because no place is better than next to Penn State when it comes to online education. This is the type of thinking and of course one part of this that I discovered by recently working to help attract a company is that as a community and as an institution we don't have a well-worn path to attract companies to our areas. And this is not just University Park, this could be next to Hershey, this could be next to York, this could be next to Abington.

"The fourth part of this, is enhancing an already strong path to student career services. We are keenly interested in having the databases that both help students when they're thinking about a major and to walk in to those majors with their eyes wide open. And this is a proposal to measure and report the career success of our graduates and the impact of the Penn State experience. So think about this as an effort, much like engineering has done, think of this as an effort to collect all that data, analyze it and report it out. So when you're going to choose a major, you're seeing these are the job titles you might have, these are the salary ranges, this is the current unemployment rate. It may not be true there in the future. And this, most important of all, is exactly what happens to the graduates who come out of this program at Penn State University. It should be a powerful tool to help students and it should be a powerful tool for us to understand the success of our programs, and so we're looking at \$300,000 a year,

to help assess that as an activity. Skills and knowledge base, we are very keen on developing minors and certificate programs and other credentialing opportunities that are open to all majors that promote a fundamental understanding of business or entrepreneurial activities so that whether you're a music major or a history major who may go off and be successful in business or an engineer who's going to work for a company, any major that we can successfully enhance their skills and knowledge base so that they can be more successful and more employable when they leave Penn State. So this is a case of the Provost committing up to \$2 million.

“Enhancing an already strong path to where student career service is continued as a focus on enhancing their career services even further. The key here is to diversify our employer base and really to assist students along these lines in terms of opportunities for students. I hear this many times about strengths of job fairs and some students feel less ready to step in to that mode than others and perhaps are more curious than knowledgeable, so we can up our game in those lines. As a target for philanthropy but not as announcement for the funding that we're going to do we're also going to look at the potential to create a student innovation foundation. The University has a relationship with faculty as an employer in terms of the ownership of their intellectual property. We do not claim the ownership of the intellectual property of our students. But if we're going to walk this walk, then we need to make sure that our students are successful and just because we don't have partial ownership in their intellectual property does not mean we have any less obligation to help them be successful to create startups. And so we will be looking at that as an opportunity to set up outside of our institution to make sure that they get the mentoring and support and advice that will help them be successful.

“What I've just described is a proposed institutional investment and economic development, job creation and student career success that we call *Invent Penn State*. It's a comprehensive, integrated effort that promotes entrepreneurial activities, adds visibility to our intellectual property, creates those spaces and mentoring and opportunities to attract companies and basically, creating that entrepreneurial ecosystem around University Park and our campuses. It is also a focus on student career--continued efforts and student career success; it is a new investment of \$5 million annually with a one-time investment that is upwards of \$24 million in order to create those spaces. Just to recap, I've been focusing on six imperatives. I've spoken with you about three of them so far, basically, the outline, the menu of the things that we should be interested in. I am today reporting on our efforts on two of those. It wasn't that long ago that I've reported the topics. I'm incredibly pleased that today we're talking about the investment that we're going to make and our focus on those two is on cost of degree, timely completion rates is what that means. Attrition due to finances and growth in student debt, a focus on what I view as the most important problems in terms of the financial success of our students and the educational success of our students. And second, to create a powerful path that enables Penn State to be recognized not for its economic impact but for its ability to drive economic development, job creation, and to see our students follow that intellectual property into great jobs. Thank you very much for your attention and I'm happy to answer questions and I know that was long but hopefully, you see a real investment in these topics that I think will bear a lot of fruit.”



President's Report to the Board of Trustees

January 16, 2015

Six Imperatives – Progress Update

- Access and Affordability
- Economic Development and Student Career Success
- Student Engagement/Engaged Scholarship
- Diversity and Demographics
- Technology and Curriculum Delivery
- Excellence



Access and Affordability: Enhanced Educational Pathways

Student Access and Affordability – Summary of Data

Strengths:

- Record applications – will exceed last year's high – strong value proposition because of high quality
- % of first in family students still growing – 39% at CC and 21% at UP (37%/19% Pell)
- *For the Future* raised (\$530M) for scholarships
- Student default rates (6.4%) are more than 2% below PA averages and 3.6% below national averages; no change in % of students taking on debt (66% for the last decade)

Student Access and Affordability – Summary of Data

But:

- Average debt has grown from \$20,000 a decade ago to \$35,429
- Student default rates have grown each year since the recession started
- A 3% tuition increase is small compared to an extra year of tuition – our students borrowed \$23M to go years 5 and 6
- Significant differences in retention and graduation rates associated with family income

Student Access and Affordability – Summary of Data

Family income is the strongest predictor of graduation rates and low-income students are graduating at significantly lower rates:

<u>Income</u>	<u>6-yr graduation (all)</u>	<u>6-yr graduation (UP)</u>	<u>6-yr graduation (CC)</u>
Less \$18,486	50%	71.1%	40.1%
\$34,676-55,230	62.7	80.3	53.5
Greater \$88,002	77.6	88.0	62.8

Student Access and Affordability – Critical Goals

- Increase retention and graduation
 - Greatest tragedy is student loans and no degree
- Decrease the total cost of a degree – (time to degree a major factor)
 - Paying for more than 4 years the second greatest tragedy
- Decrease rate of borrowing
- Decrease the attrition due to finances - need-based students take longer to graduate (their education costs more), have lower retention rates, and higher loan rates

Student Access and Affordability

- **Provost Nick Jones established the Penn State Enhanced Education Pathway Committee**
- Co-chairs: David Christiansen, Associate VP & Senior Associate Dean for Academic Programs, Commonwealth Campuses
- Renata Engel, Associate VP for Online Programs, University Outreach

Members

- Yaw Agawu-Kakraba, Director, University Summer Sessions
- Susan Basso, VP, Human Resources
- Richard Brazier, Assoc. Prof., Math and Geology, PS DuBois
- Mike DiRaimo, Governmental Affairs
- Andrea Lyn Dowhower, Assist. VP for Student Affairs
- Yvonne Gaudelius, Assoc. VP & Senior Assoc. Dean, UG
- Andrew Reisinger, Assist. Director, Analysis & Budget Studies

Committee Priority

Goal: Highest quality education at a cost that ensures access for our citizens



Recommendation 1:

Math, English and Foreign Language Prep for Incoming Students

Goals: Remediation of deficiencies so students begin college placed at the appropriate level in their intended major; Students can also earn credits toward degree

Target Audience: Incoming students with high school deficiencies

Impact: Time to degree; efficient placement; GPA

Implementation:

- Connect to existing Summer Bridge Program and Assessment and Learning in Knowledge Spaces (ALEKS) initiative
- Offer online, noncredit World Campus course with exit exam to determine student course placement
- Provide facilities and faculty for tutoring
- Offer students opportunities for “credit by exam” as they gain proficiency

Anticipated Costs

- **Cost to Institution:** Retaining faculty and facilities over the summer; possibly student services as well
- **Cost to Student:** Minimal fee to cover ALEKS/credit by exam



Recommendation 2:

Summer School/On Campus Employment for First- and Second-Year Students

Goals: Provide employment and educational opportunities during summer sessions so students can work while making progress toward degree; Address any remediation issues

Target Audience: At-risk students (low income, first generation, provisional)

Impact: Retention, graduation rates, cost of degree; borrowing rates; significant impact on at-risk students

Implementation:

- Campuses will be selected for 2-3 year pilot programs based on their target audience, ability to provide meaningful employment opportunities and a viable business model
- Eligible students can work up to 20 hours on-campus while earning 6-credits as a freshman; 12-credits as a sophomore during summer

Anticipated Costs

- **Cost to Institution:** \$3+ million for student wages offset by students filling needed positions in sports camps, academic institutes and other activities.
- **Cost to Student:** Tuition offset with scholarships



Recommendation 3:

STEP II (Student Transitional Experiences Program-Expanded)

Goal: Provide financial, academic and social support for students who change campuses to ensure satisfactory academic progress

Target Audience: Students making the junior-year transition to UP

Impact: Some reduction in time to degree anticipated; higher graduation rates

Implementation:

- Expand the current STEP II summer program to include additional majors
- Guide students as they complete two courses to meet degree requirements
- Add a co-curricular component to engage students in campus activities and career resources
- Add year-round staffing to provide mentoring/consistent support

Anticipated Costs

- **Cost to Institution:** Instructional support; a program coordinator and team of student wage employees
- **Cost to Student:** Tuition and housing, target philanthropy to reduce costs through scholarships



Recommendation 4:

Student and Family Financial Literacy and Well-being

Goals: Improve understanding of the cost of an education and the long-term consequences of debt; Expand/refine existing financial literacy programs and ensure availability at all campuses

Target Audience: All undergraduate students

Impact: Significant decrease in student loan rates

Implementation:

- Communicate the financial consequences of completing only 12 credits per semester through a marketing campaign, eLion messages and better advising
- Regularly update students on loan status/debt so they don't borrow more than they need (lifestyle borrowing may be as high as \$20M a year based on U. Indiana financial literacy experiment)
- Develop/implement an online education module on financial literacy prior to the school year

Anticipated Costs

- **Cost to Institution:** Minimal
- **Cost to Student:** None, but great potential gains



Added Action 5:

Decrease in proposed tuition rates

Goal: Increase access and affordability at Commonwealth Campuses

Target Audience: Students at 14 campuses

Impact: Increased accessibility at campuses with higher percentages of need-based students – retention, graduation rates, lower loan rates

Implementation:

Propose 8 campus tuition increases drop to 0%

- Shenango, Beaver, DuBois, Fayette, Greater Allegheny, Mont Alto, New Kensington, Wilkes-Barre

Propose 6 campus tuition increases drop to 1.8%

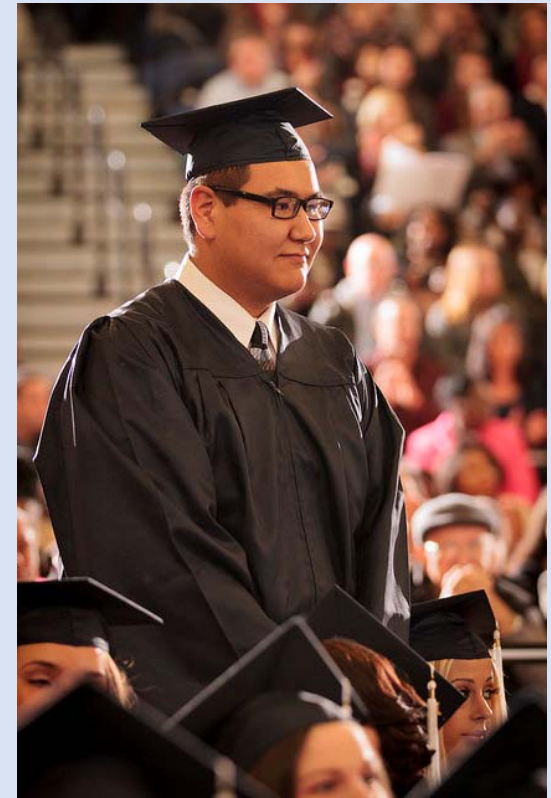
- Brandywine, Hazleton, Lehigh Valley, Schuylkill, Worthington-Scranton, York

Remainder at 2.4%

- Abington, Altoona, Berks, Erie, Harrisburg

Anticipated Costs

- **Cost to Institution:** Depends on how tuition changes impact enrollments
- **Cost to Student:** Lower costs than proposed in our budget submission



Added Action 6:

Provost Awards: Increase from \$20M awarded in summer/fall 2014 to \$25M in summer/fall 2015; merit and financial need criteria; \$4,000 per student (coupled with Raise.me in 5 H.S. to earn tuition scholarships based on achieving success factors)

Cost to institution: Highly mitigated by higher yields of strong students; potential to be neutral or even positive

Impact: Increased accessibility; higher GPA; lower loan rates; higher completion rates

Institutional Investment in Access and Affordability

- Six major initiatives or enhancements
- An additional \$11 million annually that will support students and their families by:
 - Decreasing the cost of degree for families
 - Improving graduation rates
 - Enhancing student success
 - Reducing student and family debt
 - Largest impact on need-based students

***Invent Penn State:
Let's turn great discoveries into a great
economy, together.***

Economic Development & Student Career Success: Summary

- \$800+ million in annual Research Funding since 2011
- Largest single contributor to the state's economy, generating more than \$16 billion annually.
- Top place to recruit students



Economic Development & Student Career Success: Summary

But

- Only 62nd in getting our intellectual property into the marketplace
- Opportunity to create excellent jobs and provide greater opportunity for our students



Objective

Goal: Create a powerful path that enables Penn State to be recognized as a driver of economic development, job growth and student career success.

Effort led by Neil Sharkey, Vice President for Research

Thematic Areas

Fulfilling our land-grant mission in the 21st century

- Transforming our ability to promote economic development
- Increasing external visibility of our intellectual property
- Creating capacity and capability to develop startups and to attract companies
- Enhancing an already strong path to student career success

Transforming our ability to promote economic development

Entrepreneurs-in-Residence - SR - P

- Multiple hires - experience in creating patents, licensing products or building/leading companies

Partnerships across colleges and programs

- Create new internal partnerships between the “inventor” and business/entrepreneur (students and faculty) **\$1.5M annually**

Faculty Hiring in Areas of Potential Economic Impact

- New faculty in disciplines that have high potential for innovation, address workforce needs and further student success **SR**

Transforming our ability to promote economic development

Ramp Up Office of Research Capacity

- Strategic hires focused on ensuring rapid response and advancement of economic development priorities **(Also SR)**

Faculty Reward Structures

- Establish 2 monetary, university-wide awards to recognize successful invention disclosures, patents, licenses, startups, student career success and contributions that build social capital **(Also P)**

Increasing external visibility of our intellectual property

University-wide IP Fair

- Highlight innovation across the university.
- Create venue for emerging ideas, promising R&D efforts and new products **\$100K annually (also potential sponsors)**

Competition for Startup Funding

- Competitive awards to kick-start promising new companies and products **\$250K annually (also P)**

Increasing external visibility of our intellectual property

Penn State branded platform for investors

- Venue for business plans designed to attract significant investment to fuel the success of startups derived from University R&D
- Publicize the wealth of ideas and innovations generated by our faculty, staff and students
- **\$350K per year to create and maintain platform**

Creating capacity/capability to develop startups & attract companies

Entrepreneurial Boot Camp

- Purchase/renovate space adjacent to campuses to create space for startups; including winners of competitions
- Provide access to free legal aid, startup mentors and expertise on access to capital
- **\$21M** for renovations adjacent to UP; **\$300K annual** leases for CC in partnership with communities – 6 pilot projects (**also community participation**)

Creating capacity/capability to develop startups & attract companies

Flexible, low cost space – phase II startups

- Buildings may be a partnership between the University, community and businesses **\$2M** capital outlay

Innovation Park

- Increase visibility - stronger signal of development hub

Recruiting Companies

- Identify matches between specific economic sectors and areas of innovation at Penn State; target companies; streamline process

Enhancing an already strong path to student career success

Assessing career outcomes

- Measure/report the career success of graduates and the impact of the Penn State experience
- Collect, analyze and report all post-graduate career data across the University, including job titles, salary ranges and current unemployment ranges **\$300K**

Skills and knowledge base

- Create credentialing opportunities (minors, certificates) open to all majors that are both discipline-based and Smeal-based **\$2M**

Enhancing an already strong path to student career success

Career Services

- Diversify our employer base through a university-wide employer development initiative to expand available career opportunities **\$100K**

Student Innovation Foundation

- Create dedicated programming/support to help students start business and build social capital **P**



Institutional Investment in Economic Development, Job Creation and Student Career Success

- Comprehensive, integrated effort that promotes entrepreneurial activities; adds visibility to our intellectual property; creates spaces and mentoring for new companies, and directly addresses student career success
- New investment of \$5M annually
- One-time investments exceeding \$24M

Recap/Endnote

Two main goals

- FOCUS on the cost of degree (timely completion), attrition due to finances and growth in student debt
- Create a powerful path that enables PSU to be recognized as a driver of economic development and student career success



Questions?



Remarks from Provost and Executive Vice President Nicholas P. Jones

Meeting of the Penn State Board of Trustees, University Park

January 16, 2015

“Good afternoon. In my last Board report, I discussed the composition of Penn State’s faculty and the main types of faculty appointments. At research universities like Penn State, faculty have multiple roles. They are teaching introductory courses to undergraduates as well as providing more advanced coursework at the graduate level. They are serving as undergraduate and graduate student advisors and mentors. At the same time, they are actively involved in research and public service.

“Following up on the topic of faculty, I’d like to begin today with an exceptional honor given to Dr. Laurie Grobman, professor of English and Women’s Studies at Penn State Berks. Dr. Grobman has a strong record of research; she has published four books and more than 30 articles in peer-reviewed journals and books. She is also a caring and committed teacher who has involved her students in community-based research projects in Berks County. Dr. Grobman was honored in November as the *Outstanding Baccalaureate College Professor of the Year* by the Carnegie Foundation for the Advancement of Teaching. This is a tremendous honor and we’re very proud of her accomplishments. Dr. Grobman is one of many Penn State faculty who excel both as researchers and as teachers.

“Later this afternoon, Jean Vasilatos-Younken, Interim Dean of the Graduate School, will discuss graduate education at Penn State. I’m going to use my time to set the stage by discussing the importance of research universities and the role of graduate students – like the Penn State grad students pictured here studying music, meteorology, and engineering. Research universities prepare the next generation of educated citizens and scholars. They offer a full-range of undergraduate majors, plus master’s and doctoral programs. They are committed to groundbreaking research activities and are centers of discovery and dissemination of scientific knowledge. Penn State consistently ranks among the top 20 research universities in the country.

“U.S. Congressman Charlie Dent received the Science Coalition’s *Champion of Science Award* at an event hosted by Penn State Lehigh Valley last March. Here is what Mr. Dent said about why he supports funding for basic science research . . . ‘such research often results not just in expanding the frontiers of our knowledge but in concrete applications with real world benefits for America both economically and socially.’ Governor-elect Tom Wolf has also weighed in on the importance of research and development, focusing on the value to manufacturing, renewable energy technology, the health care industry, as well as the importance of university business incubators for job creation.

“Penn State is a powerhouse in terms of our research strength. What does that mean? You may recall that in the latest National Research Council Assessment of research doctorate programs, Penn State scored exceptionally well. Our top ranked programs were anthropology, plant biology, kinesiology and Spanish, as shown here. Several other programs within the Colleges of Agricultural Sciences, Earth and Mineral Sciences, Engineering, and Health and Human Development were also highly ranked. These rankings were based on multiple characteristics related to research activity of faculty, student support and outcomes, and diversity of the academic environment.

“Another validation of our research expertise comes from the National Science Foundation’s annual surveys of Research and Development expenditures at U.S. institutions of higher learning by field of research. I know that you can’t read all this detail, but I want you to appreciate that this is a very comprehensive study. It’s the primary source of information on R&D expenditures at higher education institutions in the United States. This slide shows the research expenditure rankings for Penn State in 2012, the latest year for which such data is available. Penn State rankings are in the dark blue line near the bottom of the list and our top 10 rankings are shown in red. Penn State is highly ranked across a broad spectrum of disciplines.

“Here are some of the same NSF rankings in an easier to read format. In comparison to universities such as Michigan, Stanford, MIT, and Columbia, we rank in the Top 10 in several fields in Engineering, as well as in Atmospheric and Earth Sciences, Mathematics, Computer Science, Agriculture, Psychology, and Sociology. These rankings are for Fiscal Year 2012. The NSF survey release for 2013 is expected soon.

“Ever since Evan Pugh’s discovery in 1857 that plants take nitrogen from the soil and not from the air, Penn State’s combination of distinguished faculty, inspired students, and research infrastructure has led to some incredible discoveries. The science and flight operations for NASA’s Swift Satellite are controlled by Mission Operations Center at University Park. Our Applied Research Lab is a critically important national leader in undersea defense systems and other defense-related technologies. The Materials Research Lab just received a \$15 million grant from the National Science Foundation to continue their research on materials at the nanoscale. You may have noted on a previous slide that we rank number 1 in materials science.

“We have tremendous expertise in the fields of climate science and in sustainable and renewable energy. A 5-year, \$30 million dollar NASA grant to study greenhouse gases was just announced this week. We’re also studying efficiency and environmental sustainability in the natural gas industry. Experts in cybersecurity within the College of Engineering and elsewhere on campus are studying how to detect and counter cyberattacks and neutralize the attackers.

“Agricultural research is foundational and continues to be a long-term priority area at Penn State. Research in entomology includes both honey bee and pollinator research as well as pesticide safety. Our researchers in Social and Behavioral Sciences are learning how to strengthen our schools and communities, keep kids on the right path, and enhance the resilience of military families.

“As Neil Sharkey says, ‘At Penn State, we are good at pretty much everything’ – which is a major reason why our research enterprise has remained strong even in the face of major federal budget cuts and sequestration.

“We know that legislators and higher education administrators value research. But do students benefit from attending a research university? Absolutely! At research universities, students are learning from the professors who are not only writing the textbooks, but also making discoveries that are not even in the textbooks yet. They are exploring and pushing the boundaries at the cutting edge of knowledge. Participation in research at any level is powerful. It instills critical thinking, delivers life lessons about commitment, follow-through and teamwork, helps students become more self-confident, and highlights potential career pathways and future opportunities. I’m very pleased that my daughter has enrolled at Penn State this semester and will be part of this incredible learning environment.

“We know that basic research conducted at universities like ours produces the building blocks of our world. Seeking new knowledge for the sake of advancing understanding invariably results in new inventions, applications, and solutions. Research is personally fulfilling and rewarding for faculty as well. Penn State faculty participate in international conferences, serve on advisory boards and committees that help set the nations’ research agenda, receive national and international awards and recognitions, and feel genuine excitement in sharing their work with students. Top researchers are frequently our top teachers.

“In conclusion, strong research faculty attract highly qualified undergraduate and graduate students. Students – especially doctoral students – are more likely to attend universities that offer both highly ranked faculty and excellent research facilities. Likewise, faculty are more easily recruited to places that attract top caliber students and the highest quality infrastructure. Together, research and graduate education have enhanced the reputation and effectiveness of Penn State as a superb educational environment, as well as contributed immeasurably to public welfare, the advancement of knowledge, and the economy of the Commonwealth.

“And now I’d be happy to take your questions if there is time remaining.”



Provost's Report

Nicholas P. Jones

Board of Trustees

January 16, 2015





Dr. Laurie Grobman **Professor of English and Women's** **Studies at Penn State Berks**

- Recognized as “Outstanding Baccalaureate College Professor of the Year” by the Carnegie Foundation for the Advancement of Teaching
- Received Penn State’s President’s Award for Excellence in Academic Integration in 2012



"I have made it a priority to maintain funding for basic science research because such research often results not just in expanding the frontiers of our knowledge but in concrete applications with real world benefits for America both economically and socially."



*- U.S. Congressman Charlie Dent
R-Lehigh Valley, Penn State alum*

"From research for the manufacturing industry to alternative and renewable energy technology research to health care industry research and development – there are a variety of opportunities throughout Pennsylvania where academic research and training can be transformed into job creating applications through smart planning and the strategic funding of business incubators at our colleges and universities . . ."



- *PA Governor-elect Tom Wolf*

National Research Council Rankings of Research Doctorate (Ph.D.) Programs

- Anthropology: Ranked between 1 and 2 (of 82)
- Plant Biology: 1 and 4 (118)
- Kinesiology: 1 and 6 (41)
- Spanish: 1 and 8 (60)

24 Penn State Ph.D. programs had 5th percentile ranking in top 10% of their field

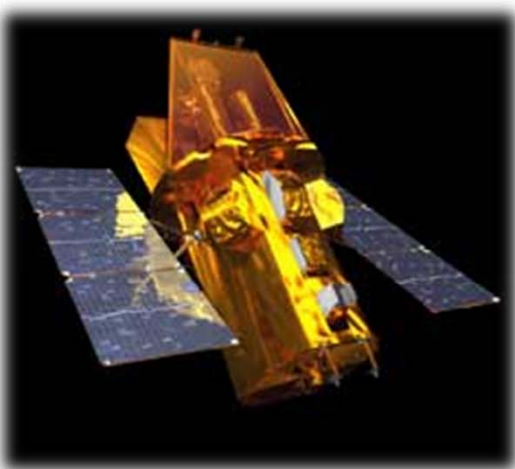
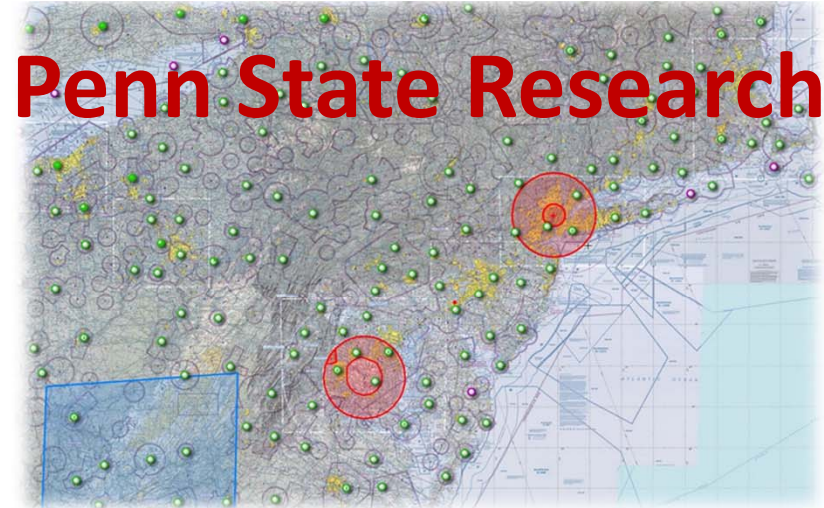
**NSF Total S&E Research Expenditure Rankings for FY2012 (Released November 2013)
Top Twenty Overall by NSF Fields and Subfields**

	FY2012 Ranking	FY2011 Ranking	FY2010 Ranking	Industry	Total Engineering	Aero/Astro-Engineering	Bio-Engineering	Chemical Engineering	Civil Engineering	Eng - Electrical	Eng - Materials	Eng - Mechanical	Total Physical Sciences	Chemistry	Physics	Astronomy	Total Environmental Sci	Atmospheric	Earth Sciences	Oceanographic	Mathematical	Computer Science	Total Life Sciences	Agricultural	Biological	Medical	Psychology	Total Social Sciences	Economics	Political Science	Sociology	Number in Top Ten Fields/Subfields
Johns Hopkins	1	1	1	13	1	1	3	7	25	1	73	1	3	24	1	19	22	91	21	1	3	2	4	51	8	5	66	71	87	161	21	14
U. Michigan	2	2	2	18	7	15	24	17	24	7	15	8	22	11	22	22	48	13	8	77	4	51	14	8	5	1	1	1	1	2	11	
U. Wisconsin	3	4	3	36	18	-	41	18	20	49	37	40	12	27	10	21	18	5	39	46	27	15	7	27	10	9	66	4	5	34	7	8
U. Washington	4	3	4	46	19	27	4	35	21	17	42	37	23	10	25	18	1	7	44	4	2	44	8	54	21	10	50	75	-	53	27	7
UC San Diego	5	6	6	6	15	-	5	-	-	5	-	19	16	8	11	-	3	9	5	2	42	8	12	210	86	4	4	38	52	13	42	10
UC San Francisco	6	7	8	10	-	-	-	-	-	-	-	-	85	39	-	-	-	-	-	-	-	-	1	-	100	1	-	-	-	-	2	
Duke	7	5	5	1	47	-	11	-	82	23	59	65	61	70	44	-	42	-	88	36	13	80	3	-	5	3	13	22	29	8	20	4
UC Los Angeles	8	8	7	11	34	-	58	47	75	25	29	20	13	25	5	-	41	24	28	-	22	25	6	-	109	2	20	10	117	78	22	4
Stanford	9	9	9	9	14	17	12	13	27	14	48	13	10	16	71	-	29	-	25	43	18	19	17	-	20	19	29	27	27	18	37	1
Columbia	10	12	12	21	45	40	17	66	66	28	119	67	25	51	15	17	7	10	2	-	34	18	14	82	13	12	59	23	80	17	15	3
UNC Chapel Hill	11	17	15	31	205	-	65	-	-	-	-	-	43	18	57	-	27	-	11	29	36	29	10	-	11	18	1	3	188	38	1	4
U. Pittsburgh	12	10	11	75	94	-	31	45	114	117	125	69	51	35	83	37	75	-	111	-	45	62	5	-	15	8	39	109	123	101	143	6
U. Penn	13	11	10	17	61	-	30	69	-	37	30	53	44	43	32	-	170	-	112	-	53	24	9	68	6	7	39	25	85	46	17	3
U. Minnesota	14	13	13	27	23	28	13	15	16	43	-	18	32	44	20	38	55	-	21	-	14	28	15	12	31	15	8	14	11	14	8	2
MIT	15	20	23	2	3	7	1	2	15	6	3	6	4	9	4	9	18	14	18	32	20	7	94	-	47	115	120	36	10	20	295	12
Cornell	16	16	17	26	27	-	48	46	61	41	22	35	6	20	9	7	44	-	37	91	47	21	18	23	28	17	52	16	4	163	11	4
Harvard	17	27	31	24	58	-	63	65	93	76	25	82	14	5	17	14	34	67	47	-	17	161	21	193	2	47	78	5	40	3	52	4
Penn State 2012	18	15	14	22	4	8	76	16	11	4	1	4	18	17	13	15	13	8	8	34	10	10	48	10	65	60	3	17	32	33	3	12
Ohio State	19	14	16	3	12	63	98	26	23	18	7	5	35	42	29	32	67	-	31	-	21	11	24	18	45	26	26	26	24	21	31	2
UC Berkeley	20	21	19	4	11	-	114	39	6	3	123	192	9	13	24	3	63	110	23	-	30	-	62	22	50	73	49	6	2	22	24	6
Penn State 2011				8	4	10	73	11	14	4	1	4	17	18	14	14	13	8	8	35	9	9	45	8	62	62	1	17	37	29	2	12
Penn State 2010				9	3	10	55	18	24	3	2	3	17	20	17	13	11	8	7	27	7	6	45	8	62	60	1	11	34	19	2	12
Penn State 2009				4	3	11	54	7	13	4	1	3	15	11	15	13	11	9	5	29	5	6	49	9	64	63	1	14	34	11	2	12
Penn State 2008				3	3	14	46	6	17	3	1	4	15	11	13	13	11	8	6	29	6	6	51	10	69	63	1	14	43	11	2	12
Penn State 2007				3	3	12	39	3	16	4	1	4	15	16	11	15	11	10	6	33	8	8	52	11	74	62	1	14	53	16	1	11
Penn State 2006				3	3	14	35	3	13	4	1	4	9	12	14	12	11	7	28	7	11	51	11	73	59	2	16	47	22	1	11	
Penn State 2005				2	3	20	35	1	11	4	1	3	9	11	11	12	13	10	8	31	6	11	50	9	78	58	2	16	45	18	1	12



NSF Total S&E Research Expenditure Rankings

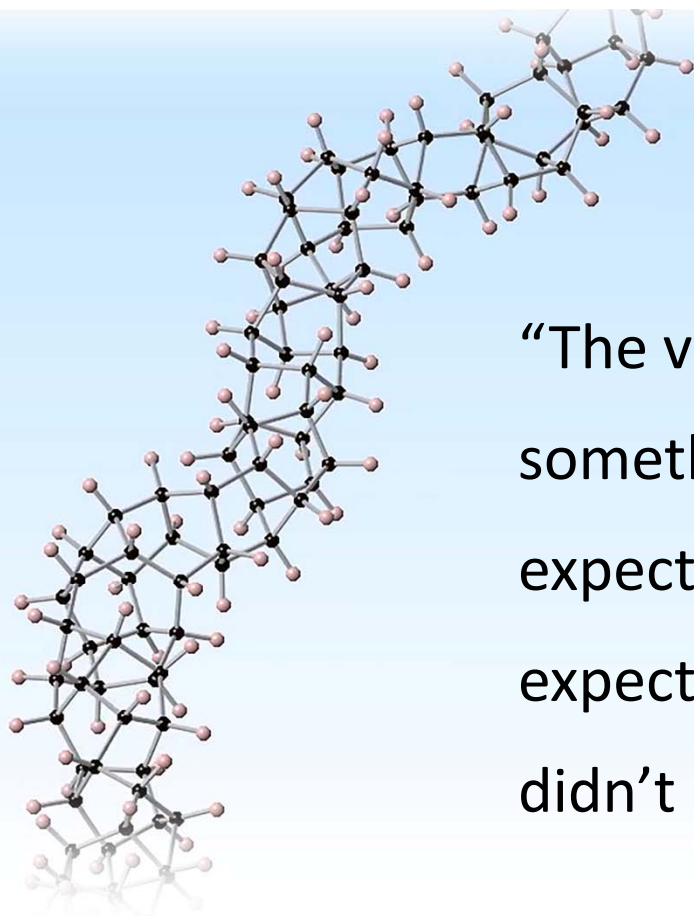
- **Total Engineering, Aero/Astro-Engineering, Electrical Engineering, Materials Engineering, Mechanical Engineering**
- **Atmospheric Sciences and Earth Sciences**
- **Mathematics**
- **Computer Science**
- **Agriculture**
- **Psychology**
- **Sociology**



Students Benefit from Research Universities

- Learn from active researchers who are discovering new knowledge
- Have opportunities to participate on a research team
- Learn what is involved in research
- Learn how to write about research & consider its applications
- Assistance in choosing career path





Diamond nanowires
John Badding Lab
Penn State

“The value of basic research is you discover something you didn’t expect — that nobody expected. And it’s where almost everything we now expect came from. My work had applications. I just didn’t know it at the time.”

- *Richard Schrock, MIT Professor of Chemistry and Nobel Prize winner*

