

PURDUE UNIVERSITY
DEPARTMENT OF INDUSTRIAL AND PHYSICAL PHARMACY
STRATEGIC PLAN: 2010-2015
Revision (Ver. 2) December 2011

VISION

The Vision for the Department of Industrial and Physical Pharmacy at Purdue University is to advance the development, manufacturing, regulation and biodistribution of medicines to improve global human health.

MISSION

The Mission of the Department of Industrial and Physical Pharmacy at Purdue University is to:

- 1) Educate and train students to become leading pharmaceutical scientists and pharmacists,
- 2) Advance scientific discovery and development, with an emphasis on pharmaceutical manufacturing, formulation and drug delivery, and
- 3) Contribute to the advancement of the pharmaceutical sciences through outreach and public service.

We will accomplish this mission through learning, discovery and engagement by:

- Attracting and retaining talented and diverse faculty, staff and graduate students.
- Delivering contemporary and innovative curricula that empower students to advance pharmaceutical research and development, to form regulatory policy, and to provide scientifically-informed patient care.
- Generating, integrating and applying knowledge across disciplines to advance discovery, learning and engagement in the pharmaceutical sciences.
- Producing world-class scientists who are prepared to assume positions of leadership in academia, government and industry.
- Establishing new synergies by creating partnerships, collaborations and strategic alliances within Purdue and at the local, regional, national and global levels.

GOALS:

GOAL 1. INCREASE THE DEPARTMENT'S CONTRIBUTIONS TO SCIENTIFIC DISCOVERY AND DEVELOPMENT IN THE PHARMACEUTICAL SCIENCES.

Strategic Direction 1.1. Strengthen the Department's research in pharmaceutical manufacturing.

Objective 1.1.1. By 2011, hire an Associate or Full Professor with expertise in pharmaceutical manufacturing research to fill the Endowed Professorship in Pharmaceutical Manufacturing.

Objective 1.1.2. By 2012, renovate pharmaceutical manufacturing laboratories located on the ground level of the Robert Heine Pharmacy Building (RHPH).

Objective 1.1.3. By 2013, hire an Assistant Professor with expertise in pharmaceutical manufacturing research.

Objective 1.1.4. Develop and maintain strategic collaborations with Purdue engineering departments and faculty members to promote interdisciplinary research in pharmaceutical manufacturing.

Strategic Direction 1.2. Strengthen the Department's research in pharmaceutical solids.

Objective 1.2.1. By 2012, hire an Assistant Professor with expertise in pharmaceutical solids to fulfill the position committed to the Engineering Research Center in Structured Organic

Strategic Direction 1.3. Strengthen the Department's research in biopharmaceutics and drug delivery.

Objective 1.3.1. By 2014, hire an Assistant Professor with expertise in formulation and/or delivery of biologics, which may include vaccines, cell-based drugs and/or DNA/RNA therapeutics.

Objective 1.3.2. By 2015, hire an Assistant Professor with expertise in small molecule drug delivery and biodistribution.

Strategic Direction 1.4. Increase the Department's level of research funding.

Objective 1.4.1. By 2015, increase the department's research funding to at least \$3.5 million per year (see Appendix I for 2009-2010 funding baseline).

Objective 1.4.2. By 2015, acquire funding for one new extramural training grant based in the department.

GOAL 2. IMPROVE THE DEPARTMENT'S GRADUATE (PhD, MS) AND CERTIFICATE PROGRAMS.

Strategic Direction 2.1. Strengthen the Department's doctoral (PhD) program.

Objective 2.1.1. By 2012, revise and restructure IPPH 562 (Manufacturing Processes).

Objective 2.1.2. By 2012, develop and offer a graduate course in drug stability and chemical kinetics.

Objective 2.1.3. By 2013, develop and offer a graduate course in pharmaceutical biotechnology.

Strategic Direction 2.2. Strengthen the Department's masters' (MS) and graduate certificate programs in regulatory science.

Objective 2.2.1. By 2012, conduct an internal review of the masters' and graduate certificate programs in regulatory science.

Objective 2.2.2. By 2012, develop a succession plan for the masters' and graduate certificate programs in regulatory science.

Objective 2.2.3. By 2012, develop a new regulatory science course on biologics ("big molecules").

Objective 2.2.4. By 2013, develop a master's degree program in regulatory science based in Africa.

GOAL 3. IMPROVE THE DEPARTMENT'S CONTRIBUTIONS TO PROFESSIONAL (PharmD) AND BACHELOR'S (BSPS) DEGREE PROGRAMS IN THE COLLEGE OF PHARMACY.

Strategic Direction 3.1. Develop courses and modules for the 2012 revision of the PharmD curriculum.

Objective 3.1.1. By 2010, develop a course outline and objectives for PHRM 82800 (Dosage Forms I) with other faculty in the College of Pharmacy.

Objective 3.1.2. By 2010, develop a course outline and objectives for PHRM 82900 (Dosage Forms II) with other faculty in the College of Pharmacy.

Objective 3.1.3. By 2011, develop a course outline and objectives for PHRM 84600 (Principles of Pharmacokinetics) with other faculty in the College of Pharmacy.

Objective 3.1.4. By 2012, develop a course outline and objectives for PHRM 86600 (Biotechnology / Advanced Parenteral Dosage Forms) with other faculty in the College of Pharmacy.

Objective 3.1.5. Participate in course development committees for other courses in the new curriculum.

Strategic Direction 3.2. Develop courses and course content for the new BSPS curriculum.

Objective 3.2.1. By 2011, evaluate the suitability of PHRM 82800 (Dosage Forms I) for use as the Pharmaceutics I course in the new BSPS curriculum.

Objective 3.2.2. By 2011, evaluate the suitability of PHRM 82900 (Dosage Forms II) for use as the Pharmaceutics II course in the new BSPS curriculum.

Objective 3.2.3. By 2012, evaluate the suitability of IPPH 521 (Drug Development) for use as the Drug Discovery and Development I course (PHRM 48000) in the new BSPS curriculum.

Objective 3.2.4. By 2012, evaluate the suitability of IPPH 522 (Good Regulatory Practice) for use as the Drug Discovery and Development II course (PHRM 48100) in the new BSPS curriculum.

Strategic Direction 3.3. Improve IPPH courses in the current PharmD and BSPS curricula.

Objective 3.3.1. By 2010, acquire new ergonomic chairs and other equipment for IPPH 471 (Parenteral Products) to facilitate student learning.

Objective 3.3.2. By 2011, complete restructuring of IPPH 363 (Basic Pharmaceutics II).

GOAL 4. ENGAGE AND COMMUNICATE WITH THE DEPARTMENT'S EXTERNAL CONSTITUENCIES.

Strategic Direction 4.1. Establish and maintain channels for regular communication with alumni, donors and other external constituencies.

Objective 4.1.1. Prepare and distribute a twice-yearly departmental newsletter.

Objective 4.1.2. By 2010, establish a department presence on LinkedIn and other professional and social networking sites.

Objective 4.1.3. Maintain a current and informative department website.

Strategic Direction 4.2. Host events that connect the Department with its external constituencies.

Objective 4.2.1. Host an alumni dinner or reception at each AAPS annual meeting.

Objective 4.2.2. Host the annual Garnet E. Peck Research Symposium.

Objective 4.2.3. Host weekly departmental seminars and include speakers from outside the department.

GOAL 5. IMPROVE THE DEPARTMENT'S SYSTEMS AND INFRASTRUCTURE TO SUPPORT THE MISSION.

Strategic Direction 5.1. Develop and support Department faculty.

Objective 5.1.1. Continue to conduct annual written and oral performance reviews for all Department faculty.

Objective 5.1.2. Continue to provide orientation and mentoring for all newly hired faculty members and those at the Assistant and Associate Professor level.

Objective 5.1.3. Identify opportunities for faculty development; encourage and document participation.

Strategic Direction 5.2. Develop and support Department administrative/professional and clerical staff.

Objective 5.2.1. By 2010, develop procedures for the annual assessment and review of Department administrative/professional and clerical staff.

Objective 5.2.2. By 2011, hire a new, part-time clerical staff member to handle communication, events planning and other duties.

Objective 5.2.3. By 2011, establish a formal orientation and mentoring process for all new administrative/professional and clerical staff.

Objective 5.2.4. Identify opportunities for administrative/professional and clerical staff professional development; encourage and document participation.

Strategic Direction 5.3. Develop and support Department scientific staff (i.e., postdoctoral research associates, research scientists and visiting scientists).

Objective 5.3.1. By 2011, establish a formal orientation process for all new scientific staff.

Objective 5.3.2. Identify opportunities for scientific staff professional development; encourage and document participation.

Strategic Direction 5.4. Improve the Department's research laboratory space and supporting office space.

Objective 5.4.1. By 2010, move the Park and Byrn groups to new rental space in Purdue Research Park.

Objective 5.4.2. By 2010, move Greg Knipp and his group to RHPH; renovate laboratory and office space if needed.

Objective 5.4.3. By 2011, provide desk space for all staff, graduate students, postdocs and research scientists outside laboratory areas.

Objective 5.4.4. By 2012, renovate space in the G-level of RHPH for the pharmaceutical manufacturing labs and other research groups.

Objective 5.4.5. Participate in the design and development of the Drug Discovery Building.

Objective 5.4.6. Participate in the design and development of the new College of Pharmacy Building.

Objective 5.4.7. By 2012, work with REM to qualify the Department's laboratory space for an Integrated Safety Plan.

**APPENDIX I: 2009-2010
Grants and Contracts to
IPPH**

					Total Staff Award Count	Total Staff Award Amount	Total Award Amount
INDUSTRIAL AND PHYSICAL PHARMACY							
BYRN, STEPHEN R	CO-PI	IU SCHOOL OF MEDICINE	Indiana CTSI (Clinical and Translational Science Institute)	10/28/2009	0.02	15,002	750,091
BYRN, STEPHEN R	PI	AMGEN,INC	Funding for 41st Annual Pharmaceutuics Graduate Student Resea	07/13/2009	1.00	7,500	7,500
BYRN, STEPHEN R	PI	AMIPurdue	Drug Reformulation - Phase II	01/25/2010	0.60	144,000	240,000
BYRN, STEPHEN R	PI	BILSLAND, WINIFRED B. ENDOWMENT	Trasi,Niraj,S	11/12/2009	1.00	9,468	9,468
BYRN, STEPHEN R	PI	Natnl Inst for Phrmctcl Tech & Educ	In Vivo-in Vitro Correlation: Development of Dissolution Me	01/13/2010	1.00	62,000	62,000
BYRN, STEPHEN R	PI	NIAGARA MOHAWK	Lu,Ying	07/08/2009	1.00	16,750	16,750
BYRN, STEPHEN R	PI	PFIZER INC	Pfizer Gift	01/27/2010	1.00	25,000	25,000
BYRN, STEPHEN R	PI	ROSS GRAD FELLOWSHIP/ASSISTANTSHIP	Raina,Shweta,A	07/14/2009	1.00	19,511	19,511
BYRN, STEPHEN R	PI	ROSS GRAD FELLOWSHIP/ASSISTANTSHIP	Xie,Tian	07/14/2009	1.00	19,511	19,511
CARVAJAL, TERESA M	PI	FRENCH GOVERNMENT	Masters in Drug Science	10/28/2009	1.00	9,600	9,600
CARVAJAL, TERESA M	PI	HOFFMANN-LA ROCHE INC.	Fundamental Investigation Unraveling API Material Properties	12/11/2009	0.50	25,000	50,000
GREEN, MARK A	PI	Brogan Pharmaceuticals Inc	Radiopharmaceutical Chemistry Research	09/11/2009	1.00	1,000	1,000
GREEN, MARK A	PI	IU SCHOOL OF MEDICINE	Indiana Clinical and Translational Science Institute	10/27/2009	1.00	18,575	18,575
GREEN, MARK A	PI	IU SCHOOL OF MEDICINE	Whole-Body PET/CT Assessment of Tumor Perfusion Using Genera	09/01/2009	1.00	79,178	79,178
HEM, STANLEY L	CO-PI	MERCK RESEARCH LABORATORIES	Effect of sterilization by gamma irradiation on the chemical	03/29/2010	0.33	14,641	44,366
HEM, STANLEY L	CO-PI	Path	Formulation and Testing of BPL-killed pneumococcal Vaccine w	10/15/2009	0.50	54,238	108,475
HEM, STANLEY L	PI	General Chemicals Inc	Reheis, Inc.	09/11/2009	1.00	10,000	10,000
KNIPP, GREGORY T	CO-PI	PHS-NIH NATIONAL CANCER INSTITUTE	Peritumorally transformable nanoparticles for Intraperitonea	03/03/2010	0.01	1,979	197,922
KNIPP, GREGORY T	PI	BIOANALYTICAL SYSTEMS, INC.	Novel Animal Modeling of the PK for Generic Formulations	08/24/2009	1.00	29,442	29,442
KNIPP, GREGORY T	PI	BIOANALYTICAL SYSTEMS, INC.	Testing and Development of Pharmaceuticals on the Pigturn	03/01/2010	1.00	8,545	8,545
PARK, KINAM	PI	DKC Corporation	Biological applications of Novel Fluorescent Probes	07/30/2009	0.20	6,315	31,574
PARK, KINAM	PI	DKC Corporation	Biological applications of Novel Fluorescent Probes	06/28/2010	0.20	6,559	32,793

PARK, KINAM	PI	IU SCHOOL OF MEDICINE	Exercise, Diabetes, & Coronary Smooth Muscle Ca2+	06/16/2010	0.40	31,099	77,748
PARK, KINAM	PI	PHS-CDC CENTERS FOR DISEASE CONTROL	Adaptable Polymer Micelles For Tumor Targeting	03/16/2010	0.24	73,353	305,637
PARK, KINAM	PI	PHS-NIH NATIONAL HEART,LUNG & BLOOD INST	Layer-by-layer assembly for making drug-eluting stents	09/22/2009	0.30	105,499	351,664
PINAL, RODOLFO	PI	ABBOTT LABORATORIES	CPPR Membership 1/1/10-12/31/10	01/20/2010	1.00	35,000	35,000
PINAL, RODOLFO	PI	ABBOTT LABORATORIES	Dane O. Kildsig Center for Pharmaceutical Processing Researc	12/14/2009	1.00	35,000	35,000
PINAL, RODOLFO	PI	AstraZeneca Pharmaceuticals LP	Dane O. Kildsig Center for Pharmaceutical Processing Researc	01/05/2010	1.00	35,000	35,000
PINAL, RODOLFO	PI	Catalent Pharma Solutions	CPPR	03/03/2010	1.00	35,000	35,000
PINAL, RODOLFO	PI	HOFFMANN-LA ROCHE INC.	Characterization of Amorphous Formulations	02/12/2010	1.00	35,000	35,000
PINAL, RODOLFO	PI	LILLY (ELI) AND COMPANY	CPPR	02/19/2010	1.00	35,000	35,000
PINAL, RODOLFO	PI	SHIONOGI AND COMPANY LTD	CPPR Consortium	04/19/2010	1.00	35,000	35,000
SMITH, DANIEL T	CO-PI	AMIPurdue	Drug Reformulation - Phase II	01/25/2010	0.40	96,000	240,000
SMITH, DANIEL T	CO-PI	IN STATE DEPARTMENT OF HEALTH	Anti-Acrolein Treatment in a Live Animal Model of SCI	11/05/2009	0.30	18,000	60,000
SMITH, DANIEL T	PI	Clinton Fnd HIV/AIDS Initiative	Bioavailability of Protease Inhibitors in Rats	01/19/2010	1.00	55,000	55,000
SMITH, DANIEL T	PI	WORLD HEALTH ORGANIZATION	Medicines for Children - Research Concept Note - Fixed Dose	06/08/2010	1.00	5,000	5,000
TAYLOR, LYNNE S	CO-PI	RUTGERS, THE STATE UNIVERSITY	Engineering Research Center on Structural Organic Composites	11/11/2009	0.25	239,235	956,940
TAYLOR, LYNNE S	PI	NATIONAL SCIENCE FOUNDATION	Collaborative Research: Polysaccharide Derivatives for Enha	07/15/2009	1.00	64,907	64,907
TAYLOR, LYNNE S	PI	PHARMACEUTICAL RES & MF OF AMER FDN INC	Crystallization Inhibition of Supersaturated Solutions	08/03/2009	1.00	20,000	20,000
TOPP, ELIZABETH M	PI	PHRMA FOUNDATION	Andreas Sophocleous / Post doc - PhRMA Foundation Grant	01/27/2010	1.00	80,000	80,000
TOPP, ELIZABETH M	PI	PHS-NIH NAT INST OF GENERAL MEDICAL SCI	Protein Aggregation in Amorphous Solids	02/01/2010	1.00	248,552	248,552
TOPP, ELIZABETH M	PI	PHS-NIH NAT INST OF GENERAL MEDICAL SCI	Protein Aggregation in Amorphous Solids	03/17/2010	1.00	276,543	276,543
TOPP, ELIZABETH M	PI	PRF SUMMER RESEARCH GRANTS	2010 GS SRG - INPP	05/12/2010	1.00	2,636	2,636
WEATHERMAN, KARA D	PI	IU SCHOOL OF MEDICINE	Teaching Nuclear Medicine Technology Course at IU	08/19/2009	1.00	2,000	2,000
YEO, YOON	CO-PI	DKC Corporation	Biological applications of Novel Fluorescent Probes	07/30/2009	0.50	15,787	31,574
YEO, YOON	PI	Park Yang Chung	Yang Chun Park Vol. Support	04/08/2010	1.00	3,000	3,000
YEO, YOON	PI	PURDUE UNIVERSITY	Doubly p-H responsive chitosan nanogels for drug delivery to	06/04/2010	1.00	8,000	8,000

YEO, YOON	CO-PI	DKC Corporation	Biological applications of Novel Fluorescent Probes	06/28/2010	0.50	16,396	32,793
YEO, YOON	PI	AMER ASSOC OF PHARM SCIENTISTS	AAPS New Investigator Grant	01/11/2010	1.00	25,000	25,000
YEO, YOON	PI	PHS-NIH NATIONAL CANCER INSTITUTE	Peritumorally transformable nanoparticles for Intraperitonea	03/03/2010	0.94	186,047	197,922
YEO, YOON	PI	PURDUE RESEARCH FOUNDATION: XR GRANT	Quinic acid-conjugated nanoparticles for tumor-targeted drug	06/14/2010	1.00	16,795	16,795
						2,417,660	