

# *Impact of INBRE at Winthrop*



# *Key Areas Impacted*

*Research-Centered Undergraduate Science Education*

*Biomedical Research Faculty*

*Proposal Submissions*

*Scientific Equipment and Infrastructure*

*Summer Undergraduate Research Program*

*Mentoring Students from Underrrepresented Groups*

*Biomedical Science Curriculum Enhancements*

*Integration into State Science Network*

# *INBRE is Changing Winthrop*

*"You have to know the past to understand the present." Carl Sagan*

## *During decade prior to INBRE and BRIN*

- No NIH funding awarded to Winthrop University*
- Ten year total of \$5,980 in NSF research funding*
- One major federal research grant \$75K (USDA)*
- Several small federal grants (< \$10K total for all these)*

## *From 2007-2008 Winthrop University Vision of Distinction's second overall university academic strategic initiative:*

*"To establish experiential learning as a defining characteristic of the Winthrop Experience, Winthrop will implement its plan to institutionalize undergraduate research and comparable undertakings across the curriculum."*

# *NIH & Winthrop INBRE Commitments*

## *\$1.5 Million NIH, \$3.5 Million Winthrop*

- *100% reinvestment of all indirects (F&A) back into INBRE*
  - *Total of \$540,130 INBRE Years 1-4, (\$155,073 Yr 4)*
- *INBRE yearly allocation – internal budget from new student fees*
  - *Total of \$595,000 for Years 1-4 (\$165,000 in Year 4)*
- *Additional Equipment Investments*
  - *Total of \$770,000 for Years 1-4*
- *25% Reallocation of teaching load for six INBRE target faculty*
- *100% Reinvestment of all faculty salary NIH costs into INBRE*
  - *25% of six target faculty, \$95,276 for current year alone*

## *Biomedical Research Faculty*

- *During the five years prior to INBRE, one to two Winthrop faculty involved with biomedical research*
- *12 scientists (10 Ph.D. and 2 MS) now conducting biomedical research*
  - *Four new staff scientist (2 PhD, 2 MS) positions*
  - *Several young faculty recruited to center basic research interests on potential biomedical applications*
  - *New biology biomedical physiology faculty position filled January 2008*

# *NSF Major Research Instrumentation (MRI) Proposals*

- *Prior to INBRE, Winthrop had submitted no MRI's*
- *Jan 2006: MALDI-TOF proposal submission*
- *Jan 2007: 1) MALDI-TOF resubmission, 2) Confocal microscope submission and 3) Collaborative instrument development submission*
- *MALDI-TOF award, \$282,209, August 2007*



## *Research Proposal Submissions*

- *During the decade prior to INBRE, Winthrop had submitted no NIH AREA or NSF RUI proposals*
- *Since the start of INBRE:*
  - *Four NSF-RUI submissions within past two years*
  - *Four NIH AREA proposals within past two years*
  - *One NSF RIG award during INBRE Year 2*
  - *Two PRF submissions and one PRF award*

## *Equipment: Modern Tools for Student Research*

- *Over \$400,000 in biomedical research equipment purchased using internal funds during INBRE*
- *During INBRE Year 3, Winthrop's Board of Trustees approved concept of borrowing funds to address science equipment need backlog*
- *AY2007-2008, \$700,000K of additional biology and chemistry equipment through SC loan plan*

# *Summer Undergraduate Research Program (SURE)*

- *Formal application process and competitive selection*
- *Winthrop-provided dorm rooms for research students*
- *Summer kickoff session*
- *Weekly gatherings for group research presentations*
- *Two seminars by external speakers*
- *End-of-summer oral presentations*
- *Publication of abstract booklet from summer research*
- *Fall poster session*
- *Directed by community of junior research faculty*
- *20-25 students and 10-12 faculty participants*
- *Students supported by INBRE, NSF, & Winthrop*

## *Participation by Students from Underrepresented Groups*

- *During first three INBRE years, 14 (27.4%) of the 51 undergraduates engaged in INBRE research have been from underrepresented groups*
- *NOBCChE national chapter established in 2007*
- *Sep 2007 NSF-URM pre-proposal submitted to pilot a Meyerhoff approach*
- *Three African American Winthrop INBRE students have matriculated into Ph.D. programs*

## *Enhancement of Biomedical Science Curriculum*

- *ACS approval of biochemistry degree option (2006)*
- *Establishment of biology biomedical research track*
- *Three new advanced courses: biological mass spectrometry, organic chemistry of drug design, and biochemical science journal club.*
- *Medicinal Chemistry approach to General Chemistry II successfully piloted with multiple faculty for the past two years*

## *Increased Integration into the State Higher Ed Network*

- *Utility of INBRE Library Resources!!!!*
- *Winthrop-MUSC agreement signed to foster increased ties in biomedical science and research; medicinal chemistry collaboration Grattan-MUSC*
- *Summer seminars by MUSC & Clemson scientists*
- *MUSC advice helpful in NSF MRI award*
- *Summer biomedical seminars at Clemson; summer workshops at USC*

*Questions  
&  
Comments*