Summer 2016 Volume II, Issue II

## Department of BIOCHEMISTRY

# The[CATALYST]

### [News & Announcements]

**Congratulations** to the 26 PhD and Masters students who graduated Saturday, May 14th, 2016. This 2016 Investiture and Graduation Ceremony was the first to only include PhD in the Schools of Medicine and Pharmacy, MS in Biomedical Sciences, MS in Clinical and Translational Science and MS in Health Sciences graduates. It was also the only HSC ceremony that was attended by WVU President, Dr. Gordon Gee.



Congratulations to our own Biochemistry Program graduates, Amanda Suchanek, Dan Murphy and Elisha Martin!"

• • • • • •

**Dr. Drew Shiemke** is the recipient of the **Percival L. MacLachlan Award!!** This award is selected by the second year medical students in the School of Medicine in recognition for excellence in teaching basic medical sciences. *This award was established in 1963 by Michael J. "Mickey" Moore, MD and perpetuated by the Class of 1946 in memory of Percival L. MacLachlan, Ph.D.* (1907 – 1948) who was a member of the faculty in Biochemistry from 1936 to 1948. Dr. MacLachlan was a "teacher who demonstrated unusual teaching ability and a sincere interest in the progress of the entire class". Congratulations to Dr. Drew Shiemke, this is an exceptional award to receive!



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Upcoming Birthdays	Michael McKinstry David McDonnell Knox VanDyke Elisha Martin William J. Canady Yehenew Agazie Brandon Jones Eric Tucker John Michael Ruppert Visvanathan Ramamurthy Kyla Galbreath Stephanie Shumar Gina Mazzetti Maxim Sokolov Chen-Chung Lin Diana Beattie Janelle Weaver Xueli Gao Marycharmain Belcastro	Jane Jane Jane Jane Jaly Jaly Jaly Jaly Jaly Jaly Jaly Jaly	20 23 23 24 28 5 7 9 11 21 23 25 26 8 11 14 27 6
Upcor	Maxim Šokolov Chen-Chung Lin Diana Beattie Janelle Weaver Xueli Gao Marycharmain Belcastro William Petros Anna Kiseleva	July July Aug Aug Sep Sep Sep	28 31 11 14 27 6 7 18
	Marilyn Evans Satyabrata Sinha Michael Schaller	Sep Sep Oct	24 29 1

"Science makes people reach selflessly for truth and objectivity; it teaches people to accept reality, with wonder and admiration, not to mention the deep awe and joy that the natural order of things brings to the true scientist." ~ Lise Meitner

### [News & Announcements cont'd]

ject from the National Institute of Biomedical Imaging and Bioengineering to develop a new multifunctional imager that will enable multifunctional mapping of physiologically-critical parameters, such as pH, oxygen, and interstitial inorganic phosphate (Pi). The title of his 2 year project is "Multifunctional in Vivo EPR Imaging of Tumor Microenvironment".

motions starting the 2016-2017 academic Frisch's Lab, defended on Friday, June 3rd, year! Dr. Peter Stoilov and Dr. Elena Pugacheva will be promoted to Associate Ramamurthy will be promoted to full Epithelial-Mesenchymal Transition: Ef-Professor in Ophthalmology. Congratula- fects on Anoikis". Josh is part of the MD/ tions to all!

**Three Graduate Students Have Present**ed Their Final Defense:

Elisha Martin, Graduate Student in Dr. Phillip Pifer, Graduate Student in the

**Congratulations** to **Dr. Mark Tseytlin**, 2016. His title was "SHP2 promotes Triple 24th, 2016. His presentation starts at 9:00 Assistant Professor of Biochemistry, who Negative Breast Cancer by mediating AM in room # 2157 HSC North. The title just secured a \$427,326 funded R21 pro- crosstalk between EGFR and Wnt/  $\beta$ - is: "Grainvhead-like-2 inhibits the cocatenin singling pathways"

> Elisha is applying for jobs with the CDC and NIH. Working in a government lab is something that he really aspires to do. His alternative plan is applying for academic lab positions, such as a research assistant, doing independent research and training students. Elisha's future is open to many possibilities!

Josh Farris, Graduate Student in the Can-We will have 3 Biochemistry Faculty Pro- cer Cell Biology Dept. with Dr. Steven 2016. The title of his presentation was "Grainyhead-like-2 Reverses the Meta-Professor and awarded tenure. Dr. Vishy bolic Changes Induced by the Oncogenic PhD program here at WVU. After finishing his time in Dr. Frisch's lab, he plans to return to 3rd year medical school. Ultimately, Josh hopes to practice radiation oncology.

Yehenew Agazie's Lab, presented his Mas- Cancer Cell Biology Dept. with Dr. Steven ter Thesis Defense on Tuesday, April 26, Frisch's Lab, will defend on Friday, June

activator p300, suppressing tubulogenesis and the epithelial-mesenchymal transition" After defending his dissertation, Phillip will be going back to medical school to finish his 3rd and 4th year, expecting to graduate in May 2018. His plan is to prepare for a cancer related residency yet to be determined.

**Best of luck to all our Graduate Students!** 



### [Chair's Corner]

It is a very interesting and eventful time of mology with a joint appointment in Biothe year. There are some new beginnings chemistry. Congratulations to Elena, Peter with a new faculty hire in the Department. and Vishy!! Your hard work has paid off Dr. Aaron Robart will be joining the faculty and we look forward to more good things in August. Aaron has trained at the Univer- to come. Josh Farris defended his thesis on sity of Calgary, UCLA and UCSD and will June 3, 2016 and Phillip Pifer is scheduled establish his independent research program at WVU studying RNA splicing from a and Phillip are both MD/PhD students, structural perspective. Welcome Aaron, who completed their dissertations in Steve Meredith and Sloane! It is also the end of Frisch's lab, and will rejoin the third year promotion and tenure season at WVU (an of the medical school curriculum. Congrat-October to May process) and we are all ulations to Josh and Phillip! very happy to hear that Provost Joyce McConnell has notified Drs. Elena Pugacheva and Peter Stoilov that they will be promoted to Associate Professors of Biochemistry and awarded tenure. Dr. Visvanathan Ramamurthy has also been notified that he will be promoted to Full Professor in the Department of Ophthal-

to defend his these on June 24, 2016. Josh

Finally, it is the end of the academic year and the HSC recently held its first PhD Investiture and Commencement Ceremony, School of Medicine and School of Pharmacy. Previously, the academic degrees of PhD and MS in the Biomedical Sciences were awarded as part of the MD Investi-



ture Ceremony. President Gee attended the ceremony and conferred the degrees on the graduates, while the student's mentors hooded the PhD recipients. Congratulations to Biochemistry's recent graduates, Amanda Suchanek, PhD, Dan Murphy, PhD and Elisha Martin, MS!!!

"Science, for me, gives a partial explanation for life. In so far as it goes, it is based on fact, experience and experiment." ~ Rosalind Franklin

### The [Spotlight]

### 10 Things you didn't know about:

Jessica E. Hall

### The Basics

Title: Lab schlub who may have fooled Bucknell U into thinking I can teach. Office: 3111 HSN



- 1. What was your very first job? Working at Mr. Hyde's Leather in Canton, Ohio. It was a really small shop, so I ran the register, helped fit boots and motorcycle gear for customers, wrapped gifts, and even learned how 6. to do repairs.
- 2. Do you have any nicknames? I have several. My roller derby name is Peptide Blonde and most of my team mates call me Pep. My dad and some of my other family members call me Butch or Butchy.
- 3. Weirdest food you've ever eaten? Guinea pig in Sacsahuaman, Peru. Their enclosure was a model of the Incan ruins nearby, and you picked out your favorite, like a lobster. I picked a spotted one, and he tasted like squirrel. I've also eaten, llama (Peru), rattlesnake (Wyoming County, WV), bear (Mineral County, WV), blesbok, impala, giraffe & warthog (South Africa). I have to try the local flavor while traveling!
- 4. If you could have dinner with any historical figure who would it be and why? Viktor Schrekengost. A fellow

NE Ohio native, Schrekengost was an artist who decided he could apply art 8. and change the world. He revolutionized the field of industrial design, and many of the iconic products we think of in homes from the 60s were designed by him. (That rounded chrome toaster. Those metal lawn chairs that are somehow comfy. The Red Rider wagon!) He also made some really 9. innovative advances in ceramics and utilized them to make fine art, including "The Jazz Bowl" series for Eleanor 10. Who was your favorite teacher in Roosevelt. I think he would have a really unique approach to solving problems.

- If you had to do it all over again what would you study in school? Still science but probably something like ecology or forestry. Something where I could go play in the mud and be in the woods but still be working. Being inside all day is soul sucking....not to mention no windows!
- Why does your wedding ring look like that? (\*Asked by someone in the *department\**) My husband wanted something unique and beautiful, but also sturdy and practical. The Ceylon Sapphires are recycled from vintage jewelry (no blood diamonds here!) and the petals around the setting are intentionally meant to make a rounded design that won't shred lab gloves. He's thoughtful! SO



What is your favorite vacation spot? Anywhere I haven't been before! Currently I'm trying to plan a trip to Iceland, for no other reason than airfare

to Reykjavik is surprisingly cheap!

- What are you thankful for? (\*warning mushy stuff ahead\*) My husband, Chris, and my son, Godric. Not only are they already best friends, but they are the best support system a grad student could have. Nothing fixes a brain fried from writing like a few hours with those two goofballs!
- What are you most afraid of? It's a tie between failure and the HSC North freight elevator.
- school and why? Miss Schmader, my junior high science teacher and track coach. She was terrifying, until I realized she just had a suuuuper dry sense of humor. I don't know if many of my classmates caught on to that. She also got me started in science fair, and by proxy, research.



"Always get back to the function of the object. The aesthetics, the marketing, and whatever you want to worry about about all comes in on top of that. Let's take the cost out of it so that everybody can afford good design." ~ Viktor Schreckengost

7.

### [A Day In The Life: Of A Course Director]

### by Drew Shiemke

active role in the MD curriculum. All of this who took this exam nationwide. scrutiny is understandable, because when the course directors.

recordings of all of the lectures. The stu-

When I am asked what its like to be a jectives. To make sure the students are must have involved a lot of meetings.) This course director, I usually say that course prepared for their board exam, I work time of year, I am working with the indirectors have a lot of responsibility but closely with the instructors to ensure that structors to put the lecture schedule tolittle authority. This is especially true for the course content is aligned with what is gether for this fall. When I directed underdirecting courses in the MD degree curric- tested on the board exams. The instructors grad courses this was a simple task; there ulum, which has several very active com- review a kind of "practice board exam" were only ~55 lectures and 2-3 other inmittees (Course Directors Committee, Cur- called the NBME Subject Exam every year structors and it usually took about 2-3 riculum Committee, Assessment Commit- or two to ensure our course is preparing days to do. For Human Function there are tee, etc.) looking over my shoulder and all the students for these exams. Lately we've over 200 lectures, several lab exercises, too eager to tell me that I'm "doing it been pretty successful at this; last fall the  $\sim$ 15 regular instructors, and about a dozen wrong". There are also several levels of average score for our students on the Bio- clinicians who each give a 1-hour clinical administration (primarily in the Depart- chemistry Subject Exam was at the 88th correlation lecture. In addition, there are ment of Medical Education) that take an percentile, relative to medical students five regular exams of 100 questions and

university is certifying that the student is tor is to try to make things as easy as pos- May and ask them to make sure there are qualified to practice medicine (albeit un- sible for the other faculty who teach in the no conflicts with other obligations (travel, der supervision, as a resident). Needless to course, so they will want to keep teaching other courses, clinic schedule, etc.). Inevisay, all of this scrutiny can be a burden for in this course. This includes scheduling tably I will hear back from 2-3 people lectures for days and times that are con- about conflicts, so then it's a matter of venient (although most would say that shuffling lecture dates to make sure that The way I look at my job as course director eight o'clock lectures are never conven- the content is delivered in the correct oris to maintain balance between the needs ient). In addition, I try to make sure that der and at a time when it fits with the othof the students, the faculty, and the institu- people who lecture on related topics are er lectures. Needless to say, this requires a tion (kind of like the character Sheldon aware of each other's content so that stu- lot of emailing back and forth to multiple Sands in the movie "Once Upon a Time in dents aren't getting conflicting infor- instructors. (My email inbox had ~7000 Mexico", but since he was a CIA agent his mation, and that redundancy is minimized messages going back about 3 years before methods were much harsher than mine). and reinforcement is maximized. The in- I recently went through it and deleted The students in Human Function are in structors also need to know what material about 5000 of them.) their very first semester of medical school is covered on the board exam so I try to so I have a responsibility to make sure provide guidance on that aspect of the lec- Once the semester starts in the fall, I will they get off on the right foot. To do that I tures. I also work with the instructors to spend my mornings in class. I attend every try to make the organization of the course help them find ways to make their lectures lecture (8:00 to 11:00, Monday through as simple to understand as possible. I try relevant to medicine, in order to keep the Friday) in order to know what is going on to make it easy for the students to know students interested and to reinforce the in the course and to be able to address any where they are supposed to be, when they idea that this material will be important concerns that students have. The afterare supposed to be there, and what they and useful when they are practicing physi- noons are often spent communicating with are supposed to do. To do this we make cians. In order to do this, I have had to faculty and students. When I am lecturing ample use of SOLE to provide the detailed learn much more about disease states, in the course most emails from students schedule of lectures and other course ac- pathophysiology, and treatment of diseas- are asking for clarification of parts of my

the NBME subject exams in Biochemistry and in Physiology to schedule. I send a first a student graduates with an MD degree the Another big part of the job of course direc- -draft schedule to the other instructors in

tivities, and to deliver powerpoint files and es that I would have ever thought possible. lectures. This has actually been very beneficial to me over the years because it helps dent's main concerns are passing the All of these tasks require a lot of communi- me identify concepts that are difficult for course and being prepared for the board cation with students, instructors, adminis- the students so I can change the lecture exams. I try to make sure that the students trators, other course directors, textbook and (I hope) improve it for subsequent know what is to be covered on each exam publishers, and even the national board years. When I am not lecturing, I still by encouraging faculty to include learning organizations. So a typical day for me in- spend a lot of time communicating with objectives for each lecture and to make volves a lot of email (I'm not sure how any- students about how to succeed in Human sure that exam questions reflect those ob- one ever did this job before email, but it Function. I typically have 4-5 meetings per

### [A Day In The Life: Of A Course Director, Cont'd]

them what they are doing right and what (which is responsible for keeping track of directing. they are doing wrong. Since these students what is taught and when it is taught during are new to medical school they are not the 4 years of medical school). Each of always aware of the resources available to these committees meets once a month. help them, such as peer tutoring, meetings Most of what they do is pro forma, but ocwith faculty, practice question databases, casionally there is a significant amount of voluntary review sessions, etc.

During the semester I also spend a consid- So that's what life is like as a course direc-

work required.

erable amount of time communicating (by tor: Lots of communication with different email, of course) with the other instructors groups of people (faculty, students, adminin the course. This could be anything from istrators), lots of moving parts to keep a reminder to get their lecture materials track of (lecture schedules, exam quesposted on SOLE, information about how tions, meetings, etc.), and constantly trying many questions they will have on the up- to anticipate what needs to be done so no coming exam, results of the most recent one gets an unpleasant surprise like a Friexam, feedback on lecture content and day email that says 35 exam questions are style, and questions about how to deal due on Monday. Fortunately, I've never with poorly performing exam questions. had to send anyone such an unpleasant The last (and least enjoyable) category of surprise. Now that I've been doing this for activities that I spend my time on is meet- a while I've gotten pretty good at anticiings. As a course director I automatically pating what needs to be done, but the first became a member of the Course Directors few years as course director it seemed like Committee and the Curriculum Committee. there were unpleasant surprises for me to Since I have been doing this for a while, I deal with almost every week. I learned the have also been asked to be on the Assess- hard way how stressful that can be and

week with students who are having diffiment Committee (which reviews each that's why I try to keep everyone (faculty, culty with the course material. We typical- course and clerkship every 3 years) and students, and administrators) informed on ly discuss how they study and I try to tell the Curriculum Management Committee what's going on with the courses that I am



### [Recent Publications]

- Kozyreva VK, Kiseleva A, Ice RJ, Jones BC, Loskutov YV, Matalkah F, Smolkin MB, Marinak K, Livengood RH, Salkeni MA, Wen S, Hazard HW, Layne GP, Walsh CM, Cantrell P, Kilby GW, Mahavadi S, Shah N, Pugacheva EN. "Combination of Eribulin and Aurora A inhibitor MLN8237 prevents metastatic colonization and induces cytotoxic autophagy in breast cancer". Mol Cancer Ther. 645<sup>o</sup> May 27. pii: molcanther.0688.2015. [Epub ahead of print] PubMed PMID: 27235164.
- Pifer PM, Farris JC, Thomas AL, Stoilov P, Denvir J, Smith DM, Frisch SM. "Grainyhead-like-2 inhibits the coactivator p300, suppressing tubulogenesis and the epithelial-mesenchymal transition". Mol Biol Cell. 645° Jun 5. pii: mbc.E5°-04-0249. [Epub ahead of print] PubMed PMID: 27251061.



### [Thoughts On 2016 Graduation]

memory that we had a graduation and in- come a permanent event. vestiture ceremony just for MS and PhD ~ Lisa Salati students in the Schools of Pharmacy and Medicine. It was a momentous occasion in which these graduates could be the main event. The response from the graduates was overwhelming; 22 of the 26 PhD graduates and 4 of the 8 MS graduates attended the ceremony. Will Sloan and Aric Logsdon from the Schools of Medicine and Pharmacy, respectively, delivered the stuthis ceremony were the leading of the Eth- participated in the Graduation Ceremony and earned the hood around my neck. ical Affirmation for Scientists by 2 of the on May 14, 2016 for the School of Medi- ~ Elisha Martin authors of this oath, Drs. Ann Cather and cine and School of Pharmacy PhD and Mas-James Culbertson and the conferral of de- ter's students. It was a very memorable grees by President E. Gordon Gee. The cer- ceremony. University President Dr. Gee, emony begins a new tradition for the our Assistant Vice President of Graduate Health Sciences Center and we hope that a Education Dr. Salati, my department chair separate recognition ceremony for our Dr. Schaller and the Biochemistry Gradu-

This year was the first time in anyone's recipients of academic degrees will be- ate Director Dr. Hillgartner were in attend-



ance. While it was a serious ceremony, there were several occasions for laughter. Dr. Gee help Chris Bostick with his bowtie. Several vertically challenged mentors had creative ways to "hood" their tall students. Dr. Salati's quirky personality showed through in her comments. I really enjoyed seeing all the students who had completed their journey, and knowing it wasn't an easy one to undergo. My favorite part was the end where we all stood and sang Coundent addresses. Among the highlights of I was one of the Master's students who try Roads, that's when I knew I had done it



### [Meet Our Students]

In this issue, we are introducing two of our students who while not enrolled in our BMB Graduate Program, are members in our Biochemistry Labs.

My name is **Drew Nickerson**. I'll be a sec- and Iron Deficiency Anemia.

ond year PhD student in the Cellular and Integrative Physiology Program this up- Eventually, I hope to get a teaching/ coming fall semester. Although I am en- research faculty position at a university, rolled in the Physiology program, my P.I. is somewhere with better weather. Dr. Rajendran in the Biochemistry department. As a result, I have had the opportunity to attend functions and meet the faculty and students from both programs. I am originally from Wheeling, but I have lived in Morgantown since 2010. I graduated from WVU in 2014 with a B.S. in Exercise Physiology. After graduating, I worked for about a year as a laboratory technician for Dr. Greg Dick (former Exercise Physiology faculty), during which time I acquired an interest in research and decided to pursue a doctoral degree.

Both Dr. Dick and Dr. Rajendran study ion channels, which are of particular interest to me. Our lab is currently focused on electrolyte transport in the GI tract and uncovering some of the mechanistic details of diseases such as Ulcerative Colitis, Crohn's



Drew Nickerson Lab: Dr. Vazhaikkurichi Rajendran

enjoy the many outdoor activities that the gress through the program. area has to offer, like hiking, camping, rock ~ Evan Kerr climbing and snowboarding. ~ Drew Nickerson



Evan Keri Lab: Dr. Roberta Leonardi

I recently joined the Leonardi lab. I am from Ashfield, Massachusetts (don't worry Aside from school, my biggest passion is if you have never hear of it, it's in the westmusic. I have played with several groups in ern part of the state that no one cares Morgantown and Wheeling over the past about!). At the moment I am working on several years, and I still perform when I characterizing a new Nudix hydrolase. As have the time. I play guitar and a few other for future goals, I'll be happy to graduate! stringed instruments, and I also sing. I also Hopefully I'll get more ambitious as I pro-

### [WVU Science Policy Organization]

### by Ray Anderson

I Last year, several students from across the University formed the WVU Science Policy Organization dedicated to science and engineering policy. Because of my interest in science and policy, I decided to join this group to see what it was all about. In April of this year, I was given the incredible opportunity to travel to Washington D.C. with them to visit the offices of various congress people from West Virginia as well as the senator from my home state of South Dakota. In these meetings, we discussed the current state of scientific funding and discussed reasons why it is so incredibly important to maintain consistency in scientific funding. I also attended a South Dakota constituent coffee event on Capitol Hill where I had to pleasure of personally meeting the two senators and house representative from my home state. (Yes, we only have three congress people total.) And as proof, I got a pretty epic sess factual scientific knowledge that we and interested in the scientific landscape. selfie with them.

American Association for the Advancethe well-known Science magazine. Here, political realm. we were able to personally meet and visit



can bring to the table when making deci- If you have any interest in the intersection sions on a broad range of political issues, between science and policy, please find us During the trip we met with the office of we also have a unique and powerful way on Facebook (WVU Science Policy Organiof thinking critically to solve complex zation) and Twitter (@WVUScience) or ment of Science (AAAS), the publisher of problems—whether it be in the lab or the email me at rhanderson@mix.wvu.edu.

with the organization's CEO Dr. Rush D. As we see it, the aim of this group is to Franklin as politicians, but they felt that Holt. He reminded us that our role in poli- make us, as a community of scientists, well science was something everyone should tics is not just limited to science policy. We -versed in the world of science policy. We have a knowledge of." can play a much bigger role than that in are not primarily a lobbying group; we are ~ Rush D. Hold, Jr. politics. Not only do we as scientists pos- a network of pre-professionals engaged

"We know Thomas Jefferson and Benjamin

YOU'RE STUCK WHAT IF I KNOW KNOW WHAT YES, BUT WHAT WRITING. CECILIA WHAT I DON'T KNOW I MEAN? IF I DON'T KNOW UST REMEMBER BUT DON'T KNOW HOW WHAT I KNOW? WHAT THEY SAY TO KNOW WHAT I NEED WRITE WHAT TO KNOW TO KNOW NO. YOU KNOW WHAT I DO KNOW WWW PHDCOMICS COL

### [Word Search]

Coffee

### States Birds

Circle birds representing each state

IAUQAINROFILACCL BSNL Z AWEAXAWILLOWGOL DF INC н LEKHDPMOCKINGB RDAAJ G ACQREFLYCATCHERNKMMR Т HKCSPLRHLUOJARKEOE L S IUVROB NCARCRUA HEGH 1 Т м UROTQSP E C R N L HVP L Ν Т 0 C KWHRGI LWOFCUC R RN M Т C L E NE TKFZFHGEODQAQAAAA I NASAEHPDEKCENGN 0 GH Т Т R ROE D LXSNA E Т EGE NG N 0 т U HBERCWESAUFYNE ΖU L LU В L RKEHOMLDSXFFQEH 0 D L L FBURBRNAJWYCUEUPN LU L N KSABRNGRBLUEB F 1 RDAE A Е DTELANIDRACOC BW L NGH L TRHNCOMMONLOONF YCWS L R DHASEREHSARHTNWORBHR F QZEDWI LLOWPTARMIGANDN MWOZYEL LOWHAMMERMSL O K RENNURDAORPURPLEFINCH

AMERICAN GULL BALTIMORE ORIOLE BLUE HEN CHICKEN BLUEBIRD BROWN PELICAN BROWN THRASHER CACTUS WREN CALIFORNIA QUAIL CARDINAL CHICKADEE COMMON LOON EASTERN GOLDFINCH FLYCATCHER GREAT CAROLINA WREN HERMIT THRUSH LARK BUNTING MOCKINGBIRD MOUNTAIN BLUEBIRD NENE PURPLE FINCH RHODE ISLAND RED RINGNECKED PHEASANT ROADRUNNER ROBIN RUFFED GROUSE WESTERN MEADOWLARK WILLOW GOLDFINCH WILLOW PTARMIGAN YELLOWHAMMER

### [Crossword Puzzle]



# Coffee Break

### Across

- 1 As well (4) 3 Stress (8) 9 Without assistance (7) 10 Once more (5) 11 Be evasive (5)
- 12 Division into opposing factions (6)
- 14 Squabble (6)
- 16 Attack (6)
- 19 Small quake (6)
- 21 Take power unlawfully (5)
- 24 Bind (3,2)
- 25 Carrion-eating bird (7)
- 26 Previously (8)
- 27 European mountain range (4)

### Down

Persian Gulf emirate (3,5)
Steady, sober (5)
Unassuming (6)
Sandy common (5)
Welsh port (7)
Dispatched (4)
Header (anag) (6)
Indoor footwear (8)
Right (7)
Cosily (6)
Item of neckwear (6)
Tree yielding syrup (5)
Customary (5)
Strong restless desire (4)

Crossword Puzzle answers located on the back page [No L 🙀 KING...]

### [Upcoming Events]

### WVU and Morgantown Upcoming Events (June through September 2016)

Date(s)	Event	Time	Location	Additional Info/Website
6/4/2016	Deckers Creek Trail Half Marathon	8:30/8:45am	Morgantown, WV	www.montrails.org
6/16/2016	Stephanie Shumar Proposal Defense	1 - 2pm	3067 HSC North	-
6/18/2016	Powerman West Virginia Duathon	7:30am	Morgantown, WV	www.goo.gl/v8npWy
6/18/2016	Slide The City (Water slide)		Hough Street Morgantown, WV	www.slidethecity.com/location/morgantown/
6/19/2016	Father's Day			
6/20/2016	Happy Birthday West Virginia			
6/25/2016	Big Dog Car Show	10am - 2pm	Suncrest Town Centre	www.tourmorgantown.com/events/big-dog-car-show/
7/4/2016	Independence Day		WVU Holiday	
7/4/2016	Morgantown Running 4 on the 4th	9am	Seneca Center	info@morgantownrunning.com/
7/15/2016	Jim Dunn Memorial Scholarship Twilight 5-Miler	7pm	Wharf Street Parking Garage	www.jimdunnrun.com/race-information/
7/16/2016	Kid's Day	10am - 2pm	Downtown Morgantown	www.downtownmorgantown.com/events/
7/27 - 7/31/16	MountainFest Motocycle Rally	1 - 11pm	Mylan Park	www.wvmountainfest.com/
8/6/2016	Big Bear Lake Ultra Mountain Bike Race			
8/12/2016	2016 Rush Run 5K Run/Walk	7pm	Hazel Ruby McQuain Ampitheatre	rushrun5k@gmail.com
8/17/2016	First day of Classes at WVU			-
8/20/2016	Motown Mac N' Cheese Cook Off	2-4pm	400 Spruce St. Morgantown WV	www.motownmacncheese.com/
8/23/2016	Fall 2016 Seminar: Tamara Caspary, PhD	12-1pm	3067 HSC North	-
8/25/2016	Fall 2016 Semester Research Forum	4pm	201 Erma Byrd	Rajendran's Lab
9/3/2016	Mountaineer Football vs. Missouri	12pm	Milan Puskar Stadium	
9/5/2016	Labor Day		WVU Holiday	
9/8/2016	Fall 2016 Semester Research Forum	4pm	201 Erma Byrd	Sokolov's Lab
9/10/2016	Mountaineer Football vs. Youngstown State	2pm	Milan Puskar Stadium	
9/11/2016	Grandparent's Day			
9/13/2016	Faculty Meeting	12-1pm	Wirtz Library	
9/17/2016	Wine and Jazz Festival	11am - 6pm	Camp Muffly	www.wvwineandjazz.com/
9/17/2016	Mountain Mama 8K	8am	Suncrest	www.morgantownmarathon.com/race-details/8k/
9/20/2016	Fall 2016 Seminar: Sajish Mathew, PhD	12-1pm	3067 HSC North	
9/22/2016	Fall 2016 Semester Research Forum	4pm	201 Erma Byrd	Dr. Alexey Ivanov
9/24/2016	Mountaineer Football vs. BYU	TBA	Landover, MD	
9/27/2016	Fall 2016 Seminar: Sandra Gabelli, PhD	12-1pm	3067 HSC North	
9/29 - 10/2/16	Buckwheat Festival	8 - 10pm	Kingwood, WV	www.buckwheatfest.com/





Check out the Biochemistry Website

