

**PSU CS 533 Concepts of Operating Systems**  
**Fall 2018 (Bruce Irvin)**  
**Draft Reading List (subject to change)**  
**VERSION 9/20/2018**

*Please read papers prior to the listed class dates.*

All of the papers listed here are available to you FOR FREE through Portland State University online library and the ACM Digital Library. If you need help finding the papers, then contact the library staff. Make sure that your browser is logged into PSU with your odin account name/credentials before accessing each link. And do not pay for any of the papers.

**Topic 1: OS Structure (Weeks 1-4)**

Week 1, Classics (read by September 26):

- Per Brinch Hansen. 1970. The nucleus of a multiprogramming system. *Communications of the ACM* 13, 4 (April 1970), 238-241. <http://dx.doi.org/10.1145/362258.362278>

Week 2, Classics (read by October 1):

- Dennis M. Ritchie and Ken Thompson. 1974. The UNIX time-sharing system. *Commun. ACM* 17, 7 (July 1974), 365-375. DOI: <http://dx.doi.org/10.1145/361011.361061>
- D. R. Engler, M. F. Kaashoek, and J. O'Toole, Jr.. 1995. Exokernel: an operating system architecture for application-level resource management. In *Proceedings of the fifteenth ACM symposium on Operating systems principles* (SOSP '95), Michael B. Jones (Ed.). ACM, New York, NY, USA, 251-266. DOI: <http://dx.doi.org/10.1145/224056.224076>

Week 3, Virtualization (read by October 8):

- Paul Barham, Boris Dragovic, Keir Fraser, Steven Hand, Tim Harris, Alex Ho, Rolf Neugebauer, Ian Pratt, and Andrew Warfield. 2003. Xen and the art of virtualization. In *Proceedings of the nineteenth ACM symposium on Operating systems principles* (SOSP '03). ACM, New York, NY, USA, 164-177. DOI: <https://doi.org/10.1145/945445.945462>
- Diwaker Gupta, Sangmin Lee, Michael Vrabie, Stefan Savage, Alex C. Snoeren, George Varghese, Geoffrey M. Voelker, and Amin Vahdat. 2010. Difference engine: harnessing memory redundancy in virtual machines. *Commun. ACM* 53, 10 (October 2010), 85-93. DOI: <https://doi.org/10.1145/1831407.1831429>
- Filipe Manco, Costin Lupu, Florian Schmidt, Jose Mendes, Simon Kuenzer, Sumit Sati, Kenichi Yasukata, Costin Raiciu, and Felipe Huici. 2017. My VM is Lighter (and Safer) than your Container. In *Proceedings of the 26th Symposium on Operating Systems*

*Principles* (SOSP '17). ACM, New York, NY, USA, 218-233. DOI:  
<https://doi.org/10.1145/3132747.3132763>

Week 4, Mobile Devices (read by **October 17**):

**NOTE: we will have a guest speaker on October 15**

- Philip Levis, *Experiences from a Decade of TinyOS Development*. 10th USENIX Symposium on Operating Systems Design and Implementation (OSDI '12).  
<https://www.usenix.org/system/files/conference/osdi12/osdi12-final-183.pdf>
- Christopher Dall, Jason Nieh, *KVM/ARM: The Design and Implementation of the Linux ARM Hypervisor*. Proceedings of the 19th international conference on Architectural support for programming languages and operating systems (ASPLOS '14), March 2014.  
<https://dl.acm.org/citation.cfm?id=2541946>
- Felix Xiaozhu Lin, Zhen Wang, and Lin Zhong, K2: A Mobile Operating System for Heterogeneous Coherence Domains. ASPLOS '14, March 1–4, 2014, Salt Lake City, Utah, USA. <https://dl.acm.org/citation.cfm?id=2541975>

Week 5, Power and Heat (Read by October 22):

- Chengjian Wen, Jun He, Jiong Zhang, and Xiang Long. 2010. PCFS: Power Credit Based Fair Scheduler Under DVFS for Multicore Virtualization Platform. In Proceedings of the 2010 IEEE/ACM Int'l Conference on Green Computing and Communications & Int'l Conference on Cyber, Physical and Social Computing (GREENCOM-CPSCOM '10). IEEE Computer Society, Washington, DC, USA, 163-170.  
<https://dl.acm.org/citation.cfm?id=1953552>
- Dong Li, Hung-Ching Chang, Hari K. Pyla and Kirk W. Cameron System-level, Thermal-aware, Fully-loaded Process Scheduling. HPPAC 2012.  
<https://ieeexplore-ieee-org.proxy.lib.pdx.edu/document/4536225/>
- Baris Aksanli, Jagannathan Venkatesh, Liuyi Zhang, Tajana Rosing, Utilizing green energy prediction to schedule mixed batch and service jobs in data centers. In Proceedings of the 4th Workshop on Power-Aware Computing and Systems (HotPower), pg 5:1-5:5, 2011. <https://dl.acm.org/citation.cfm?id=2039257>

Week 6, Multi-Core and Cloud (read by October 29):

- Sergey Blagodurov, Sergey Zhuravlev, and Alexandra Fedorova. 2010. Contention-Aware Scheduling on Multicore Systems. ACM Trans. Comput. Syst. 28, 4, Article 8 (December 2010), 45 pages. DOI=10.1145/1880018.1880019  
<http://doi.acm.org/10.1145/1880018.1880019>
- Eli Cortez (Microsoft); Anand Bonde (Microsoft Research); Alexandre Muzio (ITA, Brazil); Mark Russinovich, Marcus Fontoura (Microsoft); Ricardo Bianchini (Microsoft Research), Resource Central: Understanding and Predicting Workloads for Improved

Resource Management in Large Cloud Platforms. ACM Symposium on Operating System Principles (SOSP 2017). <https://dl.acm.org/citation.cfm?id=3132772>

Week 7, Fault Tolerance (read by November 5)

- L. Lamport, R. Shostak, and M. Pease. The Byzantine generals problem. ACM Trans. Program. Lang. Syst., 4(3):382–401, July 1982.  
<https://dl.acm.org/citation.cfm?id=357176>
- Ang Chen and Hanjun Xiao and Andreas Haeberlen and Linh Thi Xuan Phan, Fault Tolerance and the Five-Second Rule, 15th Workshop on Hot Topics in Operating Systems (HotOS XV) 2015.  
<https://www.usenix.org/conference/hotos15/workshop-program/presentation/chen>

Week 8, Security (read by **November 14**, warning: no class on Monday November 12)

- TBD (EPA-RIMM)
- John Criswell, Nathan Dautenhahn, Vikram Adve, "Virtual Ghost: protecting applications from hostile operating systems." Proceedings of the 19th international conference on Architectural support for programming languages and operating systems (ASPLOS '14), March 2014. <https://dl.acm.org/citation.cfm?id=2541986>

Week 9, Concurrency and Synchronization (read by November 19)

- TBD (synchronous locking)
- Michael Greenwald and David Cheriton, The Synergy Between Non-blocking Synchronization and Operating System Structure. Second Symposium on Operating Systems Design and Implementation (OSDI '96).  
[https://www.usenix.org/publications/library/proceedings/osdi96/full\\_papers/greenwald/greenwald.ps](https://www.usenix.org/publications/library/proceedings/osdi96/full_papers/greenwald/greenwald.ps)
- Paul E. McKenney, Silas Boyd-Wickizer and Jonathan Walpole, RCU Usage In the Linux Kernel: One Decade Later. USENIX Annual Technical Conference, June 2013.  
<https://web.cecs.pdx.edu/~walpole/papers/rcu-usage2012.pdf>

Week 10, Storage (read by November 26):

- Haonan Lu, Kaushik Veeraraghavan, Philippe Ajoux, Jim Hunt, Yee Jiun Song, Wendy Tobagus, Sanjeev Kumar, and Wyatt Lloyd. 2015. Existential consistency: measuring and understanding consistency at Facebook. In Proceedings of the 25th Symposium on Operating Systems Principles (SOSP '15). ACM, New York, NY, USA, 295-310. DOI: <https://doi.org/10.1145/2815400.2815426>
- Sanjay Ghemawat, Howard Gobioff, and Shun-Tak Leung. 2003. The Google file system. In Proceedings of the nineteenth ACM symposium on Operating systems

principles (SOSP '03). ACM, New York, NY, USA, 29-43. DOI=  
<http://dx.doi.org/10.1145/945445.945450>

- Jian Xu, Lu Zhang, Amirsaman Memaripour, Akshatha Gangadharaiah, Amit Borase, Tamires Brito Da Silva, Steven Swanson, and Andy Rudoff. 2017. NOVA-Fortis: A Fault-Tolerant Non-Volatile Main Memory File System. In *Proceedings of the 26th Symposium on Operating Systems Principles (SOSP '17)*. ACM, New York, NY, USA, 478-496. DOI: <https://doi.org/10.1145/3132747.3132761>