

Errata for *Stochastic Processes*

- Page 4, line 7: Borel subset of \mathcal{U}^n such that
- Page 7, line -9: Delete “and if $s < t$,”
- Page 8, line 4: independent of Z_1, \dots, Z_{i-1} .
- Page 8, line 22: $= \text{Var } W_t - 2\text{Cov}(W_s, W_t) + \text{Var } W_s$
- Page 12, Problem 2.7: $X = Z$ a.s.
- Page 13, line -9: Change first “is” to “if”
- Page 14, line 19: Then if $s < t$,
- Page 14, line -5: $\mathbb{E}[\sup_{s \leq t} |M_s|^p]$
- Page 16, line 4: $(T_A < t) = \cup_{q \in \mathbb{Q}, q < t} (X_q \in A)$
- Page 17, line 13: Theorem 3.6(2)
- Page 33, line 4: $2^n \mathbb{P}(X_{t_0/2^n} \geq 2)$
- Page 33, line 5: “=” instead of “ \leq ”
- Page 55, line -4: Theorem 3.11
- Page 56, line 3: By Exercise 3.12
- Page 56, line 18: Then if $S < T$ are finite stopping times
- Page 58, line 16: $\langle M \rangle_{t_0}$
- Page 62, Exercise 9.4: $M_t^i = W_{t \wedge t_0}^i$
- Page 64, line -5: missing right parenthesis after ω
- Page 66, line 1: by (9.3)
- Page 66, line 6: right parenthesis missing at end of line

- Page 66, line -9: $K_j(\omega)1_{(a_j, b_j]}(s)$
- Page 67, lines 6–13: Replace each “ H_j ” by “ K_j ” and “ H_i ” by “ K_i ”
- Page 79, (12.7): $-\langle M \rangle_{t_0}$
- Page 80, line 17: $d(iuW_r + u^2r/2)$
- Page 82, line 9: $M_{t_0} = \int_0^{t_0} H_s dW_s$
- Page 90, line 9: $C_r = \int_0^r H'_u 1_B dA'_u$
- Page 91, line -9: $= \mathbb{E}_{\mathbb{P}} \left[\int_s^t \mathbb{E} [M_t | \mathcal{F}_r] H_r dr; B \right]$
- Page 140, line -5: V^n is integrable. Moreover $U_t^n = U_{T_n}^n$ and $V_t^n = V_{T_n}^n$
for $t \geq T_n$.
- Page 140, line -4: U^n and V^n
- Page 140, line -3: T_n on
- Page 160, line -10: $(\mathbb{P}^x)^*(A)$
- Page 180, line 15: $= A_{t-s} \circ \theta_s$.
- Page 229, line -10: Let W_t be a one-dimensional Brownian motion, let h_t be a
- Page 232, line 4: $d\langle M, \tilde{Y} \rangle_t =$
- Page 244, line -24: law of X under
- Page 254, line -11: $c'\varepsilon^{-2/H}$
- Page 254, line -10: again $\log N(\varepsilon) \leq c \log(1/\varepsilon)$,
- Page 261, line 1: $\rho(f, g) < \delta^2$,
- Page 264, line -15: *in probability as $n \rightarrow \infty$. Then the X_n are tight.*
- Page 279, line 5: \mathcal{S} . We make \mathcal{S} compact by taking the one-point compactification. Let C_0

Page 288, line 1: one value of $\lambda > 0$, say

Page 288, line -5: $= \lambda R_\lambda f$.

Page 301, line 6: generator, and moreover $|\psi(u)| \leq c(1 + |u|^2)$ for some constant c , then the Fourier

Page 334, line 2: $e^{-\lambda t}$ twice

Page 340, line -1: $\mathbb{P}(\sup_{s \leq t} |X_s| \geq M) \leq 1/2$.

Page 341, lines 3–7: Replace with the following.

$$\begin{aligned}\mathbb{P}(T_{i+1} < t) &\leq \mathbb{P}(T_i < t, T_{i+1} - T_i < t) \\ &= \mathbb{P}(T_{i+1} - T_i < t) \mathbb{P}(T_i < t) \\ &= \mathbb{P}(T_1 < t) \mathbb{P}(T_i < t),\end{aligned}$$

using Lemma 42.2. Now

$$\mathbb{P}(T_1 < t) \leq \mathbb{P}(\sup_{s \leq t} |X_s| \geq M) \leq \frac{1}{2},$$

so $\mathbb{P}(T_{i+1} < t) \leq \frac{1}{2} \mathbb{P}(T_i < t)$, and then by induction, $\mathbb{P}(T_i < t) \leq 2^{-i}$.
Therefore

$$\mathbb{P}(\sup_{s \leq t} |X_s| \geq 2(i+1)M) \leq \mathbb{P}(T_i < t) \leq 2^{-i}$$

and the

Page 374, line 5: $\frac{1}{2\sqrt{2\pi}} \cdot \frac{1}{x} e^{-x^2/2} \leq P(Z \geq x)$

Page 382, line -2: by $B_n \times \mathcal{S}^{n-j_n}$

Special thanks to Yair Daon and to Yaroslav Mukhin for finding many of the errors above.